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Vocabulary Builder Reference from...

David Lunney: The life cycle of a neutron star | TED Talk

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

All Words

IMPORTANT

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Session 1: Word List

massive

adj. enormous amount; very heavy and solid

synonym: enormous, giant, immense

(1) **massive** amounts, (2) **massive** stars

The recent economic downturn has resulted in **massive** layoffs.

galaxy

n. an independent group of stars, interstellar gas, dark matter, etc., in the universe, bound together by gravity

synonym: star cluster, nebula, star system

(1) elliptic **galaxy**, (2) a **galaxy** of famous actors

The Milky Way **galaxy** has numerous water-bearing planets.

fuel

n. a substance that is typically burned to generate heat or energy

synonym: energy, power, gas

(1) biomass **fuel**, (2) smokeless **fuel**

The **fuel** scarcity most severely impacted the manufacturing sector

fused

adj. joined together or combined into one; blended or integrated in a way that creates a new entity

synonym: merged, blended, united

(1) **fused** glass, (2) **fused** bones

The **fused** wires in the electrical circuit caused a power outage.

hydrogen

n. the chemical element that is the lightest gas is colorless, odorless, tasteless, and combines with oxygen to form water

(1) **hydrogen** gas, (2) heavy **hydrogen**

The **hydrogen** and the oxygen react and then form water.

helium

n. 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.

carbon

n. a chemical element that can be found in pure form as diamond or graphite, and it is also an essential part of coal and oil and is found in all plants and animals

(1) **carbon** dioxide, (2) **carbon** emission

Trees absorb **carbon** dioxide and give off oxygen.

nitrogen

n. a chemical element with the symbol N and atomic number 7, which is a highly reactive element that forms part of many compounds, including amino acids and proteins

(1) heavy **nitrogen**, (2) **nitrogen** absorption

Nitrogen gas is used to inflate car tires because it does not react with rubber.

sufficient

adj. adequate; enough for a particular purpose or requirement

synonym: acceptable, ample, satisfactory

(1) **sufficient** time, (2) self- **sufficient** economy

That candidate does not have **sufficient** means to win an election with certainty.

maintain

v. to continue to uphold or sustain; to keep in a particular state or condition; to assert or declare something to be true

synonym : preserve, uphold, sustain

(1) **maintain** order, (2) **maintain** good health

I need to **maintain** my car regularly to prevent any major mechanical issues.

structure

n. the way of construction of something and the arrangement of its parts, or a complex thing constructed of many parts

synonym : construction, architecture, establishment

(1) the **structure** of a machine, (2) **structure** and function of the brain

The organizational **structure** of start-ups is often flat and straightforward.

collapse

v. to fall down or give way suddenly, often after breaking apart

synonym : tumble, spill, bankruptcy

(1) the stock market **collapsed**, (2) ready to **collapse**

The roof finally **collapsed** after three days and three nights of heavy snowfall.

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.

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.

supernova

n. a powerful and luminous explosion that occurs in some stars, resulting in an extremely bright, short-lived object that later fades into a supernova remnant

synonym : explosion, detonation, blast

(1) extragalactic **supernova**, (2) **supernova** remnant

The **supernova** explosion created a bright new star in the night sky.

innards

n. the internal organs of a human or animal; the visceral organs, especially the stomach, and intestines; the internal parts of something

synonym : entrails, guts, viscera

(1) animal **innards**, (2) **innards** of a machine

The chef used the **innards** of the fish to make a flavorful broth.

cataclysm

n. a sudden violent event that changes the earth's environment, such as a flood or a war

synonym : disaster, catastrophe, turmoil

(1) global **cataclysm**, (2) existential **cataclysm**

The earthquake was a **cataclysm** from which the local people never recovered.

eruption

n. an instance of a sudden and violent release of lava, gas, or ash from a volcano; a sudden outburst or explosion of something

synonym : explosion, outburst, burst

(1) **eruption** alert level, (2) emotional **eruption**

The volcanic **eruption** caused widespread destruction and left the area covered in ash.

remarkable

adj. worthy of attention because unusual or special

synonym : outstanding, exceptional, extraordinary

(1) **remarkable** achievement, (2) the **remarkable** breadth of knowledge

The election was a **remarkable** success for the Whigs.

- dense** *adj.* containing a large number of people or something with little space between them
synonym: heavy, thick, idiotic
(1) nutrient- **dense** foods, (2) **dense** forests
The entire mountain is covered in **dense** rainforest.
- atomic** *adj.* of or relating to atom (= the smallest component of an element)
synonym: tiny, microscopic, nuclear
(1) **atomic** nucleus, (2) **atomic** bomb
Carbon has an **atomic** mass of 12.
- electron** *n.* a tiny particle with the negative electrical charge
synonym: negatron
(1) flow of **electrons**, (2) beam of **electrons**
The outermost **electron** shell determines the chemical properties of an atom.
- quantum** *n.* the smallest amount or unit of something, especially (electromagnetic) energy
(1) probabilistic **quantum** theory, (2) laws of **quantum** mechanics
Big techs are now eager to develop **quantum** computers.
- orbit** *n.* the path of an object around a celestial body, especially a planet, star, or moon, under the influence of gravity.
synonym: path, course, trajectory
(1) the **orbit** of the moon, (2) a planetary **orbit**
The rocket engine is used to put the satellite into **orbit**.
- depth** *n.* the distance between the top and bottom of something; between the top surface and a distance below it
synonym: deepness, profoundness, extent
(1) **depth** camera, (2) the **depth** of the water
The pond's **depth** was around five feet.

nucleus

n. the central and most important part of something; (biology) a part of the cell containing DNA and RNA and responsible for growth and reproduction; (physics) the very dense central region of an atom

synonym : core, heart, middle

(1) form a **nucleus**, (2) the **nucleus** of a team

DNA is stored in the **nucleus** of a cell.

neutron

n. a subatomic particle with no electric charge that is present in all atomic nuclei except those of ordinary hydrogen

(1) **neutron** acceleration, (2) the antiparticle of a **neutron**

A **neutron** star is incredibly dense and has a strong gravitational pull.

universe

n. everything that exists, especially all physical matter, including planets, stars, galaxies, and all other forms of matter and energy

synonym : cosmos, macrocosm

(1) theory of the **universe**, (2) expansion of the **universe**

The **universe** is about 13.8 billion years old.

laboratory

n. a workplace for doing scientific research or teaching science; a lab

synonym : lab, workshop, testing room

(1) **laboratory** accident, (2) anthropology **laboratory**

Animal protection groups call for an end to animal testing in a **laboratory**.

physics

n. the science of matter and energy and their interactions

(1) nuclear **physics**, (2) laws of **physics**

He studied the **physics** of radiation.

condense

v. to reduce the volume or size of something, often by removing water or other liquid; to make something shorter, more concise, or more concentrated

synonym : compress, compact, shorten

(1) **condense** the text, (2) **condense** water vapor
I need to **condense** all of my notes into a manageable summary for my presentation.

compact

adj. closely and firmly united or packed together, using very little space; smaller than is usual

synonym: packed, tight, consolidated

(1) a **compact** camera, (2) extremely **compact** device

Two countries acted together as if by **compact**.

proton

n. a very small particle with a positive charge equal to the negative charge of an electron that forms part of the nucleus of all atoms

(1) **proton** decay, (2) **proton** conductivity

The solar wind is composed almost entirely of electrons and **protons**.

fuse

n. a small part in an electrical device or machinery that can interrupt the flow of electrical current when it is overloaded; (verb) to become plastic or fluid or liquefied from heat

synonym: (verb) melt, (verb) blend

(1) **fuse** blows, (2) **fuse** with one another

He has a short **fuse**.

friction

n. the force that opposes motion between two objects in contact, especially by producing heat and wear, and is proportional to the normal force between the objects

synonym: rub, scrape, resistance

(1) **friction** force, (2) surface **friction**

The **friction** between the two countries was causing tension.

liquid

n. a substance, such as water or oil that flows freely and is neither a solid nor a gas

synonym: fluid

(1) colorless **liquid**, (2) hazardous **liquid**

The sponge takes up the **liquid** well.

fluid

n. a substance that can flow and is not solid

synonym: liquid, aqua, sap

(1) plenty of **fluids**, (2) **fluid** assets

She was diagnosed with a **fluid** buildup in her lungs.

surround

v. to be all around something or somebody

synonym: encircle, encompass, envelop

(1) **surround** a town, (2) a stone wall **surrounds** the palace

On three sides, mountains **surround** the settlement.

crust

n. a hard outer layer that forms on the surface of a liquid as it cools or on a solid as a result of exposure to air or moisture

synonym: layer, coating, shell

(1) **crust** formation, (2) the earth's **crust**

The bread's **crust** was golden brown and crispy.

incredibly

adv. in a way that is very difficult to believe; exceedingly or extremely

synonym: enormously, exceptionally, extraordinarily

(1) **incredibly** cheerful character, (2) get **incredibly**

insecure

Several cities are experiencing **incredibly** high unemployment rates.

equivalent

n. having the same value, quality, meaning, purpose, etc.

synonym: equal, counterpart, match

(1) **equivalent** amounts, (2) **equivalent** in meaning

The European Central Bank is Europe's **equivalent** of the Federal Reserve.

mass

n. a large amount of a substance with no definite shape or form; a large number of people or things grouped or crowded together

synonym: abundance, crowd, mob

(1) a **mass** of molten rock, (2) critical **mass**

The **mass** of people who do not own property is politically impotent.

squeeze

v. to apply pressure from two or more sides; to hold someone or something tightly in your arms, usually with fondness

synonym: compress, crush, clamp

(1) **squeeze** a lemon, (2) **squeeze** a confession

She **squeezed** the toothpaste tube from the middle to get the last bit out.

mount

v. to increase, go up, or advance gradually or continuously; to prepare and supply with the necessary equipment for execution or performance; to ride on something or someone

synonym: climb, increase, get on

(1) **mount** a hill, (2) **mount** a counterattack

They **mounted** pictures on the paper in preparation for the birthday card.

cube

n. a three-dimensional shape with six square faces that are all equal in size; (of mathematics) the result of multiplying the number by itself three times

synonym: block, square, cell

(1) **cube** root, (2) ice **cube**

I cut the cheese into small **cubes** for the salad.

phase

n. any stage in a series of events, change, or development

synonym: degree, stage, step

(1) enter on the last **phase**, (2) two- **phase** structure

The era of the industrial revolution was a crucial **phase** of history.

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.

nuclear

adj. of or relating to or constituting the nucleus of an atom; deriving destructive energy from the release of atomic energy

synonym : atomic

(1) **nuclear** fusion, (2) use of **nuclear** power

Many countries have now agreed to a treaty banning the use of **nuclear** weapons.

lasagna

n. a type of dish consisting of layers of pasta, cheese, meat, or vegetables, typically topped with tomato sauce and baked in an oven; a traditional staple of Italian cuisine

synonym : pasta bake, casserole, baked ziti

(1) **lasagna** recipe, (2) **lasagna** noodles

I always order spinach **lasagna** at my favorite Italian restaurant.

precursor

n. a person or thing that comes before another of the same kind and that contributes to or influences its growth

synonym : antecedent, forerunner, herald

(1) **precursor** cell, (2) **precursor** to serotonin

Sulfur dioxide and nitrogen oxides are the primary **precursors** of acid rain.

spin

v. to cause something to rotate rapidly; to cause someone to feel dizzy or disoriented

synonym : rotate, twirl, swirl

(1) **spin** a top, (2) **spin** thread out of cotton

The tornado is **spinning** across the countryside, destroying everything in its path.

typical

adj. having the usual characteristics or traits of a specific group of things

synonym : characteristic, usual, distinctive

(1) **typical** leader, (2) fairly **typical** symptoms

This artwork is **typical** of her work.

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.

angular

adj. measured by an angle or by the rate of change of an angle; having angles or an angular shape

synonym: jagged, angulate

(1) **angular** mountain ridge, (2) **angular** momentum

Any rotating body has **angular** momentum about its center of mass.

preserve

v. to keep or maintain a particular quality, feature, etc., especially to prevent it from decaying, being damaged, or being destroyed

synonym: conserve, care for, maintain

(1) **preserve** my strength, (2) **preserve** a country's heritage

They worked hard to **preserve** the nature of their native lands.

skate

n. a type of footwear that has a blade attached to its sole for skating on ice or other hard surfaces; an activity or sport that involves gliding on skates on ice or other hard surfaces

synonym: blade, runner, sled

(1) **skate** park, (2) roller **skate**

She has been practicing an ice **skate** routine for months

accelerate

v. to make something faster or earlier; to cause to develop or progress more quickly

synonym: speed up, quicken, rev

(1) **accelerate** a chemical reaction, (2) **accelerate** the car

The government tried to **accelerate** the commercialization of

this development.

rot

v. to decay, or cause something to decay, naturally and gradually

synonym: perish, decay, corrode

(1) begin to **rot**, (2) **rot** with age

Please refrigerate the meat, or it will **rot**.

whirl

v. to spin or turn rapidly; to move or be moved quickly in a circular manner; (noun) a spinning or rotating movement, often rapid or chaotic in nature

synonym: spin, rotate, swirl

(1) **whirl** in the washing machine, (2) **whirl** around the dance floor

The leaves began to **whirl** around in the windy weather.

magnetic

adj. having the properties of attracting or repelling certain materials containing iron or steel

synonym: attractive, drawing, hypnotic

(1) **magnetic** field, (2) a **magnetic** tape

The **magnetic** force of the earth keeps our planet spinning.

concentration

n. the ability to focus all your time and energy on one thing without thinking about anything else.

synonym: attention, engagement, assiduity

(1) **concentration** of armaments, (2) his research area of **concentration**

This exam requires excellent **concentration** to pass.

vortex

n. a mass of whirling air, water, dust, or smoke, especially a whirlpool or whirlwind

synonym: whirlpool, whirlwind, maelstrom

(1) **vortex** formation, (2) blow in a **vortex**

The **vortex** of the tornado was massive and destructive.

radiate

v. to spread out or emit something, such as light or heat, in all directions

synonym : give off, scatter, beam

(1) **radiate** an aura, (2) **radiate** in all directions

Roads **radiate** from the famous building in the center of the city.

beam

n. a long, sturdy piece of timber, metal, or other material used to support a structure or span a distance; a ray or stream of light emitted by a source

synonym : ray, ray of light, shaft of light

(1) **beam** of light, (2) a structural **beam** of a building

The sun's **beam** shone through the window and illuminated the room.

pole

n. one of two antipodal points where the Earth's axis of rotation intersects the Earth's surface; a long, slender, rounded rod, typically of wood or metal, used as a support or to hang something

synonym : rod, staff, shaft

(1) a fishing **pole**, (2) the plus **pole**

The North **Pole** is the northernmost point on Earth.

align

v. to put or arrange two or more things in a straight line or to form a straight line

synonym : coordinate, regulate, adjust

(1) **align** the economic interest of each other, (2) **align** with a historical trend

Both parties are now entirely ideologically **aligned**.

axis

n. a real or imaginary straight line through a body or figure around which the object turns; a group of countries in special alliance

synonym : central, core, pole

(1) vertical **axis**, (2) a coordinate **axis**

The earth's **axis** of rotation is tilted 66.5 degrees to the ecliptic plane.

lighthouse

n. a tower or other structure that is equipped with a powerful light designed to guide ships safely to harbor or warn them of impending danger

synonym : beacon, pharos, guiding light

(1) **lighthouse** beacon, (2) **lighthouse** keeper

Tourists gathered at the **lighthouse's** base to take photos and admire the view.

beacon

n. a light or other visible object serving as a signal, guide, or warning

synonym : lighthouse, guidepost, marker

(1) an aerial **beacon**, (2) **beacon** of hope

The lighthouse served as a **beacon** to guide ships safely into port.

blink

v. to shut and open the eyes quickly; to gleam or glow in a regular or intermittent way

synonym : twinkle, flash, flicker

(1) **blink** his eyes, (2) **blink** in astonishment

He **blinked** in the dazzling sunlight.

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.

detection

n. the act of discovering or identifying the presence of something

synonym : discovery, identification, recognition

(1) **detection** by the security software, (2) importance of early **detection**

This smartphone has a collision **detection** function.

tantalize

v. to tease or torment by presenting something desirable but out of reach or unattainable; to tempt or lure with the promise of something desirable

synonym : tease, tempt, torment

(1) **tantalize** taste buds, (2) **tantalize** with promises

The smell of freshly baked cookies in the kitchen **tantalized** me.

flash

n. a sudden intense burst of radiant energy; a momentary brightness

synonym : sparkle, gleam, glimmer

(1) a **flash** of lightning, (2) brilliant **flash**

These heavy rains caused **flash** floods on several islands.

astrophysics

n. the branch of physics concerned with the study of the properties and behavior of celestial objects and the physical processes that govern the behavior and evolution of the universe

(1) **astrophysics** research, (2) neutrino **astrophysics**

He was studying **astrophysics** in an attempt to understand the origins of the universe.

indirectly

adv. not going straight to the point; implying or suggesting something

synonym : circuitously, obliquely, by implication

(1) **indirectly** related, (2) **indirectly** impact

The CEO **indirectly** expressed her disappointment with the project's progress.

discovery

n. the act or process of finding information, a place, or an object, or learning about something that was previously not known

synonym : finding, uncovering, detection

(1) a scientific **discovery**, (2) the great **discovery** of the century

Her research team made an important **discovery**.

furious

adj. extremely angry; full of rage

synonym : angry, rageful, livid

(1) **furious** anger, (2) a **furious** sea

The coach was **furious** with the players for their lack of effort during the game.

rotation

n. the action or process of moving in a circle around an axis or center

synonym : revolution, spin, turning

(1) job **rotation**, (2) a period of **rotation**

The **rotation** of the Earth causes day and night.

electromagnetic

adj. of or relating to the magnetism produced by electric charge in motion

(1) **electromagnetic** radiation, (2) **electromagnetic** properties

His hypothesis concerns the role of an **electromagnetic** field in human health.

gravity

n. the force that attracts a body towards the center of the earth or towards any other physical body having mass; a manner that is solemn

synonym : heaviness, attraction, weight

(1) the attraction of **gravity**, (2) preserve my **gravity**

The astronaut felt weightless in space due to the absence of **gravity**.

disappear

v. to cease to exist or be visible

synonym : fade, evaporate, vanish

(1) **disappear** without a trace, (2) **disappear** after a week

They watched the train **disappear** into the distance.

observe

v. to watch or notice something carefully, often to gather information or insights; to take note of something or someone; to celebrate or commemorate a special event or occasion

synonym : watch, monitor, scrutinize

(1) **observe** a tradition, (2) **observe** wildlife

It is important to **observe** safety procedures in the workplace to prevent accidents.

binary

n. a system of numbers that uses only two digits, 0 and 1

synonym: twofold, double

(1) a **binary** number, (2) trading in **binary** options

A **binary** star is a system in which two stars revolve around each other.

companion

n. a person or an animal with whom you spend a lot of time, or you travel

synonym: affiliate, fellow, mate

(1) a working **companion**, (2) drinking **companions**

Her dog is her excellent **companion**.

gorge

n. a deep narrow valley between hills or mountains, usually with steep sides and a river running through it

synonym: canyon, gully, ravine

(1) cast the **gorge**, (2) the **gorges** of the Yangtse River

We must pass through the narrow **gorge** with a stream running through it.

loose

adj. not securely fixed or fastened in place or able to be detached or separated from something

synonym: relaxed, unconsolidated, open

(1) a **loose** tongue, (2) remove **loose** hair

The inspector discovered **loose** bolts under the fuel rods.

bound

v. to move forward by leaps and bounds; to form the boundary of something

synonym: jump, bounce, leap

(1) **bounded** with delight, (2) **bound** up a staircase

Canada **bounds** on the United States.

atmosphere

n. the mass of air that surrounds the Earth; the pervading tone or mood of a place, situation, or creative work

synonym : air, ambiance, circumstances

(1) carbon dioxide in the **atmosphere**, (2) a convivial

atmosphere

The spaceship began to burn up as it approached the Earth's **atmosphere**.

eventually

adv. finally, particularly after a long time or a lot of struggle, complications, and so on

synonym : finally, someday, ultimately

(1) **eventually** become obsolete, (2) **eventually** succeed

The corporation **eventually** dominated the entire tobacco business.

percentage

n. the number, amount, or rate of something, which is usually the amount per hundred

synonym : rate, ratio, portion

(1) the **percentage** of the gold content, (2) a high

percentage

What is the **percentage** of the consumption tax in the United States?

waltz

n. a ballroom dance in triple time that originated in Vienna and is characterized by a flowing, graceful style and a strong accent on the first beat of each measure

synonym : ballroom dance, tango, foxtrot

(1) **waltz** music, (2) elegant **waltz**

The dancers practiced the steps of the **waltz** meticulously to perfect their performance.

doom

n. death, destruction, or some other terrible situation that cannot be avoided

synonym : judgment, destiny, fate

(1) economic **doom**, (2) prophet of **doom**

Everyone was aware of the impending **doom** but was unable

to prevent it.

merger

n. the process of two or more companies joining together and becoming one entity, often to improve their competitive position or achieve synergies in operations or distribution

synonym : amalgamation, fusion, consolidation

(1) **merger** talks, (2) financial **merger**

The **merger** between the two companies resulted in a stronger market position.

collide

v. to hit something violently when moving

synonym : clash, slam, contradict

(1) **collide** head-on, (2) **collide** in midair

The interests of the two countries **collide**.

ripple

n. a small wave on the surface of a liquid, typically caused by an object falling into it or a slight wind

synonym : wave, undulation, fluctuation

(1) a **ripple** of laughter, (2) **ripple** in the water

Many businesses felt the **ripple** effect of the economy's decline.

calm

adj. not excited, angry, or nervous; free from wind, large waves

synonym : quiet, peaceful, tranquility

(1) **calm** sea, (2) **calm** manner

It was the first time in a long time that I felt truly **calm** and at peace.

relative

adj. considered and evaluated through comparison with something else

synonym : comparative, proximate, congeneric

(1) a remote **relative**, (2) **relative** factors

Most countries prohibit sexual activity between certain close **relatives**.

predict

v. to state beforehand that something will happen in the future, mainly based on knowledge or experience

synonym: forecast, anticipate, foresee

(1) **predict** the future, (2) **predict** when she will arrive

It's notoriously challenging to **predict** birth rates.

phenomenon

n. something that exists and can be perceptible, especially one that is not fully understood

synonym: marvel, wonder, splendor

(1) natural **phenomenon**, (2) historical **phenomenon**

A rainbow is a natural **phenomenon**.

verify

v. to check that something exists or is true, or to prove that something is correct

synonym: affirm, ascertain, confirm

(1) **verify** a document, (2) **verify** identity

We always **verify** all critical information independently.

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.

collision

n. an instance of two or more objects or entities crashing into each other, usually resulting in damage, impact, or conflict

synonym: crash, impact, smash

(1) **collision** detection, (2) come into **collision** with my friend

The **collision** of tectonic plates can result in new mountain ranges, such as the Himalayas or the Alps.

telescope

n. a device like a tube in shape containing lenses used to magnify and observe distant objects

(1) a binocular **telescope**, (2) look through a **telescope**

This facility has the largest astronomical **telescope** in the

country.

gamma

n. the third letter of the Greek alphabet; a type of radiation having the shortest wavelength and highest energy of electromagnetic waves

synonym : ray, radiation, emission

(1) **gamma** radiation, (2) **gamma** particles

Gamma rays are a type of high-energy radiation that can be harmful to living organisms.

ray

n. a narrow line of light, heat, or another form of energy

synonym : beam, light, glimmer

(1) opaque to X- **rays**, (2) effect of cosmic **rays**

Gamma **rays** penetrate body tissues and cause cell damage.

X-ray

n. a type of electromagnetic radiation that has a wavelength shorter than visible light allowing hidden objects such as bones and organs inside the body to be photographed

synonym : roentgenogram, photon radiography

(1) **X-ray** scan, (2) an **X-ray** of arteries

The doctor ordered an **X-ray** to see if there was any damage to the bones.

astronomy

n. the scientific study of objects and matter outside the Earth's atmosphere, especially the positions, motions, and evolution of celestial bodies

synonym : astrophysics, stargazing, cosmology

(1) **astronomy** science, (2) a branch of **astronomy**

He had a deep passion for extragalactic **astronomy** and spent hours observing the night sky.

yield

n. the total output of crops, profits, etc. that are produced; (verb) to produce or supply helpful something, such as a profit, an amount of food, or information

synonym : proceeds, harvest, output

(1) corn **yield**, (2) the **yield** on the bond

The company's stock gives a high **yield**.

treasure

n. a valuable or desirable possession; something that is cherished or held dear; a collection of valuable objects or money that is hidden or protected

synonym : hoard, fortune, gem

(1) **treasure** hunt, (2) **treasure** island

The pirates searched for buried **treasure** in the dunes.

trove

n. a valuable collection of rare or interesting things, usually on the earth

synonym : hoard, collection, assemblage

(1) **trove** of information, (2) stumble on a **trove**

The treasure **trove** of ancient artifacts was a museum's dream come true.

bolster

v. to support or strengthen, often by adding extra assistance or resources

synonym : reinforce, support, strengthen

(1) **bolster** confidence, (2) **bolster** the economy

The company hired a new advertising agency to **bolster** its marketing efforts.

origin

n. the first existence or beginning of something

synonym : root, source, ancestor

(1) **origin** of information, (2) racial **origin**

There are various hypotheses concerning the **origin** of life.

platinum

n. a dense, precious, silvery-white metal with the atomic number 78 and the symbol Pt that is highly resistant to corrosion and tarnishing, often used in jewelry, coins, and industrial applications

synonym : Pt, white gold

(1) **platinum** record, (2) **platinum** jewelry

The chemist worked with a **platinum** catalyst to speed up the reaction.

upgrade

v. to improve the value or usefulness of something such as a machine, computer system, etc., or to replace it with something newer or of a higher standard

synonym : improve, boost, enrich

(1) **upgrade** a product, (2) **upgrade** work performance

It's an excellent opportunity to **upgrade** our networking.

detect

v. to find or recognize something, especially something difficult to see, hear, etc.

synonym : catch, observe, notice

(1) **detect** a bad event, (2) **detect** smuggling across borders

The security camera has **detected** four intruders.

spectacular

adj. striking or impressive to look at or in performance or achievement

synonym : breathtaking, impressive, grand

(1) **spectacular** view, (2) achieve **spectacular** growth

The **spectacular** fireworks display was the highlight of the festival.

demise

n. death or the end of something

synonym : death, passing, end

(1) **demise** of bureaucracy, (2) meet their **demise**

The sudden **demise** of the king was a shock to everyone and threw the kingdom into chaos.

pulse

n. the regular heartbeat as it sends blood around the body, especially when it is felt at the wrist or side of the neck; a solid regular vibration of sound, electric current, light, or other waves

synonym : beat, vibration, throb

(1) a weak **pulse**, (2) **pulse** waves

The cardiac monitor displays the intensity of your **pulse**.

spinning

n. the act of rotating rapidly around an axis; in the context of textiles, the process of twisting fibers together to form thread or yarn

synonym : whirling, rotating, spinning wheel

(1) **spinning** machine, (2) **spinning** wheel

She took a **spinning** class at the gym to improve her cardiovascular fitness.

magnet

n. an object or substance that can attract certain materials, such as iron or steel

synonym : magnetite, lodestone, attracting substance

(1) **magnet** attraction, (2) permanent **magnet**

The MRI machine uses **magnets** to produce images of the body's internal organs.

Session 2: Spelling

- | | |
|----------------------------------|---|
| 1. meet their de___e | <i>n.</i> death or the end of something |
| 2. sp_____ng machine | <i>n.</i> the act of rotating rapidly around an axis; in the context of textiles, the process of twisting fibers together to form thread or yarn |
| 3. inc_____ly cheerful character | <i>adv.</i> in a way that is very difficult to believe; exceedingly or extremely |
| 4. mo__t a counterattack | <i>v.</i> to increase, go up, or advance gradually or continuously; to prepare and supply with the necessary equipment for execution or performance; to ride on something or someone |
| 5. fl__d assets | <i>n.</i> a substance that can flow and is not solid |
| 6. expansion of the un_____se | <i>n.</i> everything that exists, especially all physical matter, including planets, stars, galaxies, and all other forms of matter and energy |
| 7. la_____a recipe | <i>n.</i> a type of dish consisting of layers of pasta, cheese, meat, or vegetables, typically topped with tomato sauce and baked in an oven; a traditional staple of Italian cuisine |
| 8. a fl__h of lightning | <i>n.</i> a sudden intense burst of radiant energy; a momentary brightness |
| 9. brilliant fl__h | <i>n.</i> a sudden intense burst of radiant energy; a momentary brightness |

ANSWERS: 1. demise, 2. spinning, 3. incredibly, 4. mount, 5. fluid, 6. universe, 7. lasagna, 8. flash, 9. flash

10. tr____re island *n.* a valuable or desirable possession; something that is cherished or held dear; a collection of valuable objects or money that is hidden or protected
11. at____c nucleus *adj.* of or relating to atom (= the smallest component of an element)
12. ele_____tic properties *adj.* of or relating to the magnetism produced by electric charge in motion
13. probabilistic qu____m theory *n.* the smallest amount or unit of something, especially (electromagnetic) energy
14. vo____x formation *n.* a mass of whirling air, water, dust, or smoke, especially a whirlpool or whirlwind
15. the attraction of gr____y *n.* the force that attracts a body towards the center of the earth or towards any other physical body having mass; a manner that is solemn
16. pr____n decay *n.* a very small particle with a positive charge equal to the negative charge of an electron that forms part of the nucleus of all atoms
17. a stone wall su____nds the palace *v.* to be all around something or somebody
18. look through a te____pe *n.* a device like a tube in shape containing lenses used to magnify and observe distant objects
19. ta____ze taste buds *v.* to tease or torment by presenting something desirable but out of reach or unattainable; to tempt or lure with the promise of something desirable

ANSWERS: 10. treasure, 11. atomic, 12. electromagnetic, 13. quantum, 14. vortex, 15. gravity, 16. proton, 17. surround, 18. telescope, 19. tantalize

20. ma____ic field *adj.* having the properties of attracting or repelling certain materials containing iron or steel
21. st_____re and function of the brain *n.* the way of construction of something and the arrangement of its parts, or a complex thing constructed of many parts
22. al__n the economic interest of each other *v.* to put or arrange two or more things in a straight line or to form a straight line
23. a fishing p__e *n.* one of two antipodal points where the Earth's axis of rotation intersects the Earth's surface; a long, slender, rounded rod, typically of wood or metal, used as a support or to hang something
24. extragalactic su_____va *n.* a powerful and luminous explosion that occurs in some stars, resulting in an extremely bright, short-lived object that later fades into a supernova remnant
25. drinking co_____ons *n.* a person or an animal with whom you spend a lot of time, or you travel
26. co_____ss gas *v.* to press or squeeze together to make something take up less space
27. the de__h of the water *n.* the distance between the top and bottom of something; between the top surface and a distance below it
28. c__e root *n.* a three-dimensional shape with six square faces that are all equal in size; (of mathematics) the result of multiplying the number by itself three times

ANSWERS: 20. magnetic, 21. structure, 22. align, 23. pole, 24. supernova, 25. companion, 26. compress, 27. depth, 28. cube

29. gra_____nal energy *adj.* relating to or caused by gravity (= the force that attracts objects towards one another)
30. be___n of hope *n.* a light or other visible object serving as a signal, guide, or warning
31. ice c___e *n.* a three-dimensional shape with six square faces that are all equal in size; (of mathematics) the result of multiplying the number by itself three times
32. fr_____on force *n.* the force that opposes motion between two objects in contact, especially by producing heat and wear, and is proportional to the normal force between the objects
33. an aerial be___n *n.* a light or other visible object serving as a signal, guide, or warning
34. ob_____e a tradition *v.* to watch or notice something carefully, often to gather information or insights; to take note of something or someone; to celebrate or commemorate a special event or occasion
35. con_____ion of armaments *n.* the ability to focus all your time and energy on one thing without thinking about anything else.
36. di_____ar without a trace *v.* to cease to exist or be visible
37. lig_____se keeper *n.* a tower or other structure that is equipped with a powerful light designed to guide ships safely to harbor or warn them of impending danger

ANSWERS: 29. gravitational, 30. beacon, 31. cube, 32. friction, 33. beacon, 34. observe, 35. concentration, 36. disappear, 37. lighthouse

38. smokeless f__l *n.* a substance that is typically burned to generate heat or energy
39. de__h camera *n.* the distance between the top and bottom of something; between the top surface and a distance below it
40. spe_____ar view *adj.* striking or impressive to look at or in performance or achievement
41. X-__y scan *n.* a type of electromagnetic radiation that has a wavelength shorter than visible light allowing hidden objects such as bones and organs inside the body to be photographed
42. c__m sea *adj.* not excited, angry, or nervous; free from wind, large waves
43. wh__l in the washing machine *v.* to spin or turn rapidly; to move or be moved quickly in a circular manner; (noun) a spinning or rotating movement, often rapid or chaotic in nature
44. lig_____se beacon *n.* a tower or other structure that is equipped with a powerful light designed to guide ships safely to harbor or warn them of impending danger
45. hazardous li___d *n.* a substance, such as water or oil that flows freely and is neither a solid nor a gas
46. de__e forests *adj.* containing a large number of people or something with little space between them
47. heavy ni_____en *n.* a chemical element with the symbol N and atomic number 7, which is a highly reactive element that forms part of many compounds, including amino acids and proteins

ANSWERS: 38. fuel, 39. depth, 40. spectacular, 41. X-ray, 42. calm, 43. whirl, 44. lighthouse, 45. liquid, 46. dense, 47. nitrogen

48. f__e blows *n.* a small part in an electrical device or machinery that can interrupt the flow of electrical current when it is overloaded; (verb) to become plastic or fluid or liquefied from heat
49. pr___n conductivity *n.* a very small particle with a positive charge equal to the negative charge of an electron that forms part of the nucleus of all atoms
50. come into co_____on with my friend *n.* an instance of two or more objects or entities crashing into each other, usually resulting in damage, impact, or conflict
51. pr_____t the future *v.* to state beforehand that something will happen in the future, mainly based on knowledge or experience
52. pu__e waves *n.* the regular heartbeat as it sends blood around the body, especially when it is felt at the wrist or side of the neck; a solid regular vibration of sound, electric current, light, or other waves
53. fu__d glass *adj.* joined together or combined into one; blended or integrated in a way that creates a new entity
54. the rem_____le breadth of knowledge *adj.* worthy of attention because unusual or special
55. ind_____ly related *adv.* not going straight to the point; implying or suggesting something
56. historical phe_____on *n.* something that exists and can be perceptible, especially one that is not fully understood

ANSWERS: 48. fuse, 49. proton, 50. collision, 51. predict, 52. pulse, 53. fused, 54. remarkable, 55. indirectly, 56. phenomenon

57. ma____e stars *adj.* enormous amount; very heavy and solid
58. pr_____or to serotonin *n.* a person or thing that comes before another of the same kind and that contributes to or influences its growth
59. co_____se water vapor *v.* to reduce the volume or size of something, often by removing water or other liquid; to make something shorter, more concise, or more concentrated
60. a branch of as_____my *n.* the scientific study of objects and matter outside the Earth's atmosphere, especially the positions, motions, and evolution of celestial bodies
61. at___c bomb *adj.* of or relating to atom (= the smallest component of an element)
62. ma____e amounts *adj.* enormous amount; very heavy and solid
63. ind_____ly impact *adv.* not going straight to the point; implying or suggesting something
64. ve___y identity *v.* to check that something exists or is true, or to prove that something is correct
65. trading in bi___y options *n.* a system of numbers that uses only two digits, 0 and 1
66. surface fr_____on *n.* the force that opposes motion between two objects in contact, especially by producing heat and wear, and is proportional to the normal force between the objects
67. b__m of light *n.* a long, sturdy piece of timber, metal, or other material used to support a structure or span a distance; a ray or stream of light emitted by a source

ANSWERS: 57. massive, 58. precursor, 59. condense, 60. astronomy, 61. atomic, 62. massive, 63. indirectly, 64. verify, 65. binary, 66. friction, 67. beam

68. extremely co____t device *adj.* closely and firmly united or packed together, using very little space; smaller than is usual
69. the plus p__e *n.* one of two antipodal points where the Earth's axis of rotation intersects the Earth's surface; a long, slender, rounded rod, typically of wood or metal, used as a support or to hang something
70. bo__ded with delight *v.* to move forward by leaps and bounds; to form the boundary of something
71. emotional er____on *n.* an instance of a sudden and violent release of lava, gas, or ash from a volcano; a sudden outburst or explosion of something
72. cast the go__e *n.* a deep narrow valley between hills or mountains, usually with steep sides and a river running through it
73. theoretical ph____st *n.* a scientist who specializes in the field of physics
74. neutrino ast____ics *n.* the branch of physics concerned with the study of the properties and behavior of celestial objects and the physical processes that govern the behavior and evolution of the universe
75. pl____um jewelry *n.* a dense, precious, silvery-white metal with the atomic number 78 and the symbol Pt that is highly resistant to corrosion and tarnishing, often used in jewelry, coins, and industrial applications

ANSWERS: 68. compact, 69. pole, 70. bound, 71. eruption, 72. gorge, 73. physicist, 74. astrophysics, 75. platinum

76. flow of el____ons *n.* a tiny particle with the negative electrical charge
77. an X-__y of arteries *n.* a type of electromagnetic radiation that has a wavelength shorter than visible light allowing hidden objects such as bones and organs inside the body to be photographed
78. cr__t formation *n.* a hard outer layer that forms on the surface of a liquid as it cools or on a solid as a result of exposure to air or moisture
79. ca____n emission *n.* a chemical element that can be found in pure form as diamond or graphite, and it is also an essential part of coal and oil and is found in all plants and animals
80. a period of ro____on *n.* the action or process of moving in a circle around an axis or center
81. critical m__s *n.* a large amount of a substance with no definite shape or form; a large number of people or things grouped or crowded together
82. or____n of information *n.* the first existence or beginning of something
83. me____r talks *n.* the process of two or more companies joining together and becoming one entity, often to improve their competitive position or achieve synergies in operations or distribution
84. de____e of bureaucracy *n.* death or the end of something

ANSWERS: 76. electron, 77. X-ray, 78. crust, 79. carbon, 80. rotation, 81. mass, 82. origin, 83. merger, 84. demise

85. tr____re hunt *n.* a valuable or desirable possession; something that is cherished or held dear; a collection of valuable objects or money that is hidden or protected
86. fairly ty____l symptoms *adj.* having the usual characteristics or traits of a specific group of things
87. animal in____s *n.* the internal organs of a human or animal; the visceral organs, especially the stomach, and intestines; the internal parts of something
88. co____e head-on *v.* to hit something violently when moving
89. form a nu____s *n.* the central and most important part of something; (biology) a part of the cell containing DNA and RNA and responsible for growth and reproduction; (physics) the very dense central region of an atom
90. de____t smuggling across borders *v.* to find or recognize something, especially something difficult to see, hear, etc.
91. bl__k his eyes *v.* to shut and open the eyes quickly; to gleam or glow in a regular or intermittent way
92. talented ph____st *n.* a scientist who specializes in the field of physics
93. the earth's cr__t *n.* a hard outer layer that forms on the surface of a liquid as it cools or on a solid as a result of exposure to air or moisture

ANSWERS: 85. treasure, 86. typical, 87. innards, 88. collide, 89. nucleus, 90. detect, 91. blink, 92. physicist, 93. crust

94. pr_____or cell *n.* a person or thing that comes before another of the same kind and that contributes to or influences its growth
95. co_____ss the chest *v.* to press or squeeze together to make something take up less space
96. ra_____e an aura *v.* to spread out or emit something, such as light or heat, in all directions
97. pr_____ve my strength *v.* to keep or maintain a particular quality, feature, etc., especially to prevent it from decaying, being damaged, or being destroyed
98. global ca_____sm *n.* a sudden violent event that changes the earth's environment, such as a flood or a war
99. his research area of
con_____ion *n.* the ability to focus all your time and energy on one thing without thinking about anything else.
100. ma_____in order *v.* to continue to uphold or sustain; to keep in a particular state or condition; to assert or declare something to be true
101. sp_____ng wheel *n.* the act of rotating rapidly around an axis; in the context of textiles, the process of twisting fibers together to form thread or yarn
102. pl_____um record *n.* a dense, precious, silvery-white metal with the atomic number 78 and the symbol Pt that is highly resistant to corrosion and tarnishing, often used in jewelry, coins, and industrial applications

ANSWERS: 94. precursor, 95. compress, 96. radiate, 97. preserve, 98. cataclysm, 99. concentration, 100. maintain, 101. spinning, 102. platinum

103. 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
104. heavy hy_____en *n.* the chemical element that is the lightest gas is colorless, odorless, tasteless, and combines with oxygen to form water
105. up_____e work performance *v.* to improve the value or usefulness of something such as a machine, computer system, etc., or to replace it with something newer or of a higher standard
106. beam of el_____ons *n.* a tiny particle with the negative electrical charge
107. enter on the last ph__e *n.* any stage in a series of events, change, or development
108. the go__es of the Yangtse River *n.* a deep narrow valley between hills or mountains, usually with steep sides and a river running through it
109. the great di_____ry of the century *n.* the act or process of finding information, a place, or an object, or learning about something that was previously not known
110. begin to r_t *v.* to decay, or cause something to decay, naturally and gradually
111. de___t a bad event *v.* to find or recognize something, especially something difficult to see, hear, etc.

ANSWERS: 103. pulsar, 104. hydrogen, 105. upgrade, 106. electron, 107. phase, 108. gorge, 109. discovery, 110. rot, 111. detect

112. prophet of d__m *n.* death, destruction, or some other terrible situation that cannot be avoided
113. opaque to X-r_ys *n.* a narrow line of light, heat, or another form of energy
114. hy____en gas *n.* the chemical element that is the lightest gas is colorless, odorless, tasteless, and combines with oxygen to form water
115. ex____e in popularity *v.* to burst or break open violently and noisily; to cause something to burst or break open
116. get inc____ly insecure *adv.* in a way that is very difficult to believe; exceedingly or extremely
117. colorless li____d *n.* a substance, such as water or oil that flows freely and is neither a solid nor a gas
118. ma____t attraction *n.* an object or substance that can attract certain materials, such as iron or steel
119. a scientific di____ry *n.* the act or process of finding information, a place, or an object, or learning about something that was previously not known
120. plenty of fl__ds *n.* a substance that can flow and is not solid
121. a ri____e of laughter *n.* a small wave on the surface of a liquid, typically caused by an object falling into it or a slight wind
122. financial me____r *n.* the process of two or more companies joining together and becoming one entity, often to improve their competitive position or achieve synergies in operations or distribution

ANSWERS: 112. doom, 113. ray, 114. hydrogen, 115. explode, 116. incredibly, 117. liquid, 118. magnet, 119. discovery, 120. fluid, 121. ripple, 122. merger

123. s__n a top *v.* to cause something to rotate rapidly; to cause someone to feel dizzy or disoriented
124. a bi___y number *n.* a system of numbers that uses only two digits, 0 and 1
125. carbon dioxide in the atm_____re *n.* the mass of air that surrounds the Earth; the pervading tone or mood of a place, situation, or creative work
126. ve___y a document *v.* to check that something exists or is true, or to prove that something is correct
127. roller sk__e *n.* a type of footwear that has a blade attached to its sole for skating on ice or other hard surfaces; an activity or sport that involves gliding on skates on ice or other hard surfaces
128. acc_____te the car *v.* to make something faster or earlier; to cause to develop or progress more quickly
129. a co_____t camera *adj.* closely and firmly united or packed together, using very little space; smaller than is usual
130. the antiparticle of a ne_____n *n.* a subatomic particle with no electric charge that is present in all atomic nuclei except those of ordinary hydrogen
131. wa__z music *n.* a ballroom dance in triple time that originated in Vienna and is characterized by a flowing, graceful style and a strong accent on the first beat of each measure

ANSWERS: 123. spin, 124. binary, 125. atmosphere, 126. verify, 127. skate, 128. accelerate, 129. compact, 130. neutron, 131. waltz

132. natural phe_____on *n.* something that exists and can be perceptible, especially one that is not fully understood
133. f__e with one another *n.* a small part in an electrical device or machinery that can interrupt the flow of electrical current when it is overloaded; (verb) to become plastic or fluid or liquefied from heat
134. effect of cosmic r_ys *n.* a narrow line of light, heat, or another form of energy
135. ne_____n acceleration *n.* a subatomic particle with no electric charge that is present in all atomic nuclei except those of ordinary hydrogen
136. corn yi__d *n.* the total output of crops, profits, etc. that are produced; (verb) to produce or supply helpful something, such as a profit, an amount of food, or information
137. a ma_____ic tape *adj.* having the properties of attracting or repelling certain materials containing iron or steel
138. vertical a__s *n.* a real or imaginary straight line through a body or figure around which the object turns; a group of countries in special alliance
139. suf_____nt time *adj.* adequate; enough for a particular purpose or requirement
140. remove lo__e hair *adj.* not securely fixed or fastened in place or able to be detached or separated from something

ANSWERS: 132. phenomenon, 133. fuse, 134. ray, 135. neutron, 136. yield, 137. magnetic, 138. axis, 139. sufficient, 140. loose

141. blow in a vo___x *n.* a mass of whirling air, water, dust, or smoke, especially a whirlpool or whirlwind
142. ma_____in good health *v.* to continue to uphold or sustain; to keep in a particular state or condition; to assert or declare something to be true
143. theory of the un_____se *n.* everything that exists, especially all physical matter, including planets, stars, galaxies, and all other forms of matter and energy
144. bo_____r confidence *v.* to support or strengthen, often by adding extra assistance or resources
145. importance of early de_____on *n.* the act of discovering or identifying the presence of something
146. a ga___y of famous actors *n.* an independent group of stars, interstellar gas, dark matter, etc., in the universe, bound together by gravity
147. la_____a noodles *n.* a type of dish consisting of layers of pasta, cheese, meat, or vegetables, typically topped with tomato sauce and baked in an oven; a traditional staple of Italian cuisine
148. gra_____nal waves *adj.* relating to or caused by gravity (= the force that attracts objects towards one another)
149. a structural b__m of a building *n.* a long, sturdy piece of timber, metal, or other material used to support a structure or span a distance; a ray or stream of light emitted by a source

ANSWERS: 141. vortex, 142. maintain, 143. universe, 144. bolster, 145. detection, 146. galaxy, 147. lasagna, 148. gravitational, 149. beam

150. r_t with age *v.* to decay, or cause something to decay, naturally and gradually
151. he___m gas *n.* a colorless, odorless, tasteless, non-toxic, inert, monatomic gas, the first in the noble gas series in the periodic table
152. the yi__d on the bond *n.* the total output of crops, profits, etc. that are produced; (*v.*) to produce or supply helpful something, such as a profit, an amount of food, or information
153. eve_____ly succeed *adv.* finally, particularly after a long time or a lot of struggle, complications, and so on
154. al__n with a historical trend *v.* to put or arrange two or more things in a straight line or to form a straight line
155. a binocular te_____pe *n.* a device like a tube in shape containing lenses used to magnify and observe distant objects
156. mo__t a hill *v.* to increase, go up, or advance gradually or continuously; to prepare and supply with the necessary equipment for execution or performance; to ride on something or someone
157. a fu_____s sea *adj.* extremely angry; full of rage
158. a convivial atm_____re *n.* the mass of air that surrounds the Earth; the pervading tone or mood of a place, situation, or creative work
159. job ro_____on *n.* the action or process of moving in a circle around an axis or center
160. a remote re_____ve *adj.* considered and evaluated through comparison with something else

ANSWERS: 150. rot, 151. helium, 152. yield, 153. eventually, 154. align, 155. telescope, 156. mount, 157. furious, 158. atmosphere, 159. rotation, 160. relative

161. ty_____l leader *adj.* having the usual characteristics or traits of a specific group of things
162. rem_____le achievement *adj.* worthy of attention because unusual or special
163. pr_____t when she will arrive *v.* to state beforehand that something will happen in the future, mainly based on knowledge or experience
164. er_____on alert level *n.* an instance of a sudden and violent release of lava, gas, or ash from a volcano; a sudden outburst or explosion of something
165. laws of ph_____s *n.* the science of matter and energy and their interactions
166. co_____on detection *n.* an instance of two or more objects or entities crashing into each other, usually resulting in damage, impact, or conflict
167. su_____nd a town *v.* to be all around something or somebody
168. existential ca_____sm *n.* a sudden violent event that changes the earth's environment, such as a flood or a war
169. ga__a radiation *n.* the third letter of the Greek alphabet; a type of radiation having the shortest wavelength and highest energy of electromagnetic waves
170. nuclear ph_____s *n.* the science of matter and energy and their interactions
171. 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

ANSWERS: 161. typical, 162. remarkable, 163. predict, 164. eruption, 165. physics, 166. collision, 167. surround, 168. cataclysm, 169. gamma, 170. physics, 171. pulsar

172. he___m atom *n.* a colorless, odorless, tasteless, non-toxic, inert, monatomic gas, the first in the noble gas series in the periodic table
173. a planetary or__t *n.* the path of an object around a celestial body, especially a planet, star, or moon, under the influence of gravity.
174. the or__t of the moon *n.* the path of an object around a celestial body, especially a planet, star, or moon, under the influence of gravity.
175. an____r mountain ridge *adj.* measured by an angle or by the rate of change of an angle; having angles or an angular shape
176. ni____en absorption *n.* a chemical element with the symbol N and atomic number 7, which is a highly reactive element that forms part of many compounds, including amino acids and proteins
177. the st_____re of a machine *n.* the way of construction of something and the arrangement of its parts, or a complex thing constructed of many parts
178. in____s of a machine *n.* the internal organs of a human or animal; the visceral organs, especially the stomach, and intestines; the internal parts of something
179. co____e in midair *v.* to hit something violently when moving
180. bo__d up a staircase *v.* to move forward by leaps and bounds; to form the boundary of something

ANSWERS: 172. helium, 173. orbit, 174. orbit, 175. angular, 176. nitrogen, 177. structure, 178. innards, 179. collide, 180. bound

181. re____ve factors *adj.* considered and evaluated through comparison with something else
182. the nu____s of a team *n.* the central and most important part of something; (biology) a part of the cell containing DNA and RNA and responsible for growth and reproduction; (physics) the very dense central region of an atom
183. wh__l around the dance floor *v.* to spin or turn rapidly; to move or be moved quickly in a circular manner; (noun) a spinning or rotating movement, often rapid or chaotic in nature
184. ele_____tic radiation *adj.* of or relating to the magnetism produced by electric charge in motion
185. de____on by the security software *n.* the act of discovering or identifying the presence of something
186. an____r momentum *adj.* measured by an angle or by the rate of change of an angle; having angles or an angular shape
187. ast_____ics research *n.* the branch of physics concerned with the study of the properties and behavior of celestial objects and the physical processes that govern the behavior and evolution of the universe
188. c__m manner *adj.* not excited, angry, or nervous; free from wind, large waves
189. eve_____ly become obsolete *adv.* finally, particularly after a long time or a lot of struggle, complications, and so on
190. a m__s of molten rock *n.* a large amount of a substance with no definite shape or form; a large number of people or things grouped or crowded together

ANSWERS: 181. relative, 182. nucleus, 183. whirl, 184. electromagnetic, 185. detection, 186. angular, 187. astrophysics, 188. calm, 189. eventually, 190. mass

191. ga__a particles *n.* the third letter of the Greek alphabet; a type of radiation having the shortest wavelength and highest energy of electromagnetic waves
192. pr_____ve a country's heritage *v.* to keep or maintain a particular quality, feature, etc., especially to prevent it from decaying, being damaged, or being destroyed
193. as_____my science *n.* the scientific study of objects and matter outside the Earth's atmosphere, especially the positions, motions, and evolution of celestial bodies
194. a high per_____ge *n.* the number, amount, or rate of something, which is usually the amount per hundred
195. two-ph__e structure *n.* any stage in a series of events, change, or development
196. a working co_____on *n.* a person or an animal with whom you spend a lot of time, or you travel
197. elliptic ga___y *n.* an independent group of stars, interstellar gas, dark matter, etc., in the universe, bound together by gravity
198. ob_____e wildlife *v.* to watch or notice something carefully, often to gather information or insights; to take note of something or someone; to celebrate or commemorate a special event or occasion
199. use of nu_____r power *adj.* of or relating to or constituting the nucleus of an atom; deriving destructive energy from the release of atomic energy

ANSWERS: 191. gamma, 192. preserve, 193. astronomy, 194. percentage, 195. phase, 196. companion, 197. galaxy, 198. observe, 199. nuclear

200. a lo__e tongue	<i>adj.</i> not securely fixed or fastened in place or able to be detached or separated from something
201. ca___n dioxide	<i>n.</i> a chemical element that can be found in pure form as diamond or graphite, and it is also an essential part of coal and oil and is found in all plants and animals
202. nutrient-de__e foods	<i>adj.</i> containing a large number of people or something with little space between them
203. up_____e a product	<i>v.</i> to improve the value or usefulness of something such as a machine, computer system, etc., or to replace it with something newer or of a higher standard
204. biomass f__l	<i>n.</i> a substance that is typically burned to generate heat or energy
205. lab_____ry accident	<i>n.</i> a workplace for doing scientific research or teaching science; a lab
206. s__n thread out of cotton	<i>v.</i> to cause something to rotate rapidly; to cause someone to feel dizzy or disoriented
207. space obs_____ry	<i>n.</i> a building designed and equipped to observe the planets, the stars, the weather, etc.
208. the per_____ge of the gold content	<i>n.</i> the number, amount, or rate of something, which is usually the amount per hundred
209. acc_____te a chemical reaction	<i>v.</i> to make something faster or earlier; to cause to develop or progress more quickly

ANSWERS: 200. loose, 201. carbon, 202. dense, 203. upgrade, 204. fuel, 205. laboratory, 206. spin, 207. observatory, 208. percentage, 209. accelerate

210. sq____e a lemon *v.* to apply pressure from two or more sides; to hold someone or something tightly in your arms, usually with fondness
211. racial or ____n *n.* the first existence or beginning of something
212. sk__e park *n.* a type of footwear that has a blade attached to its sole for skating on ice or other hard surfaces; an activity or sport that involves gliding on skates on ice or other hard surfaces
213. bo____r the economy *v.* to support or strengthen, often by adding extra assistance or resources
214. co____se the text *v.* to reduce the volume or size of something, often by removing water or other liquid; to make something shorter, more concise, or more concentrated
215. anthropology lab____ry *n.* a workplace for doing scientific research or teaching science; a lab
216. ready to co____se *v.* to fall down or give way suddenly, often after breaking apart
217. fu____s anger *adj.* extremely angry; full of rage
218. ta____ze with promises *v.* to tease or torment by presenting something desirable but out of reach or unattainable; to tempt or lure with the promise of something desirable
219. ra____e in all directions *v.* to spread out or emit something, such as light or heat, in all directions
220. fu__d bones *adj.* joined together or combined into one; blended or integrated in a way that creates a new entity

ANSWERS: 210. squeeze, 211. origin, 212. skate, 213. bolster, 214. condense, 215. laboratory, 216. collapse, 217. furious, 218. tantalize, 219. radiate, 220. fused

221. laws of qu____m mechanics *n.* the smallest amount or unit of something, especially (electromagnetic) energy
222. ri____e in the water *n.* a small wave on the surface of a liquid, typically caused by an object falling into it or a slight wind
223. a weak pu____e *n.* the regular heartbeat as it sends blood around the body, especially when it is felt at the wrist or side of the neck; a solid regular vibration of sound, electric current, light, or other waves
224. equ____nt in meaning *n.* having the same value, quality, meaning, purpose, etc.
225. nu____r fusion *adj.* of or relating to or constituting the nucleus of an atom; deriving destructive energy from the release of atomic energy
226. di____ar after a week *v.* to cease to exist or be visible
227. the stock market co____sed *v.* to fall down or give way suddenly, often after breaking apart
228. su____va remnant *n.* a powerful and luminous explosion that occurs in some stars, resulting in an extremely bright, short-lived object that later fades into a supernova remnant
229. stumble on a tr____e *n.* a valuable collection of rare or interesting things, usually on the earth
230. preserve my gr____y *n.* the force that attracts a body towards the center of the earth or towards any other physical body having mass; a manner that is solemn

ANSWERS: 221. quantum, 222. ripple, 223. pulse, 224. equivalent, 225. nuclear, 226. disappear, 227. collapse, 228. supernova, 229. trove, 230. gravity

231. tr__e of information *n.* a valuable collection of rare or interesting things, usually on the earth
232. bl__k in astonishment *v.* to shut and open the eyes quickly; to gleam or glow in a regular or intermittent way
233. a coordinate a__s *n.* a real or imaginary straight line through a body or figure around which the object turns; a group of countries in special alliance
234. ex_____e in anger *v.* to burst or break open violently and noisily; to cause something to burst or break open
235. self-suf_____nt economy *adj.* adequate; enough for a particular purpose or requirement
236. economic d__m *n.* death, destruction, or some other terrible situation that cannot be avoided
237. achieve spe_____ar growth *adj.* striking or impressive to look at or in performance or achievement
238. equ_____nt amounts *n.* having the same value, quality, meaning, purpose, etc.
239. elegant wa__z *n.* a ballroom dance in triple time that originated in Vienna and is characterized by a flowing, graceful style and a strong accent on the first beat of each measure
240. a meteorological obs_____ry *n.* a building designed and equipped to observe the planets, the stars, the weather, etc.
241. permanent ma__t *n.* an object or substance that can attract certain materials, such as iron or steel

ANSWERS: 231. trove, 232. blink, 233. axis, 234. explode, 235. sufficient, 236. doom, 237. spectacular, 238. equivalent, 239. waltz, 240. observatory, 241. magnet

242. sq_____e a confession

v. to apply pressure from two or more sides; to hold someone or something tightly in your arms, usually with fondness

ANSWERS: 242. squeeze

Session 3: Fill in the Blanks

1. The leaves began to _____ around in the windy weather.
 - v. to spin or turn rapidly; to move or be moved quickly in a circular manner; (noun) a spinning or rotating movement, often rapid or chaotic in nature

2. She was diagnosed with a _____ buildup in her lungs.
 - n. a substance that can flow and is not solid

3. The outermost _____ shell determines the chemical properties of an atom.
 - n. a tiny particle with the negative electrical charge

4. This facility has the largest astronomical _____ in the country.
 - n. a device like a tube in shape containing lenses used to magnify and observe distant objects

5. The tornado is _____ across the countryside, destroying everything in its path.
 - v. to cause something to rotate rapidly; to cause someone to feel dizzy or disoriented

6. They _____ pictures on the paper in preparation for the birthday card.
 - v. to increase, go up, or advance gradually or continuously; to prepare and supply with the necessary equipment for execution or performance; to ride on something or someone

7. Sulfur dioxide and nitrogen oxides are the primary _____ of acid rain.
 - n. a person or thing that comes before another of the same kind and that contributes to or influences its growth

ANSWERS: 1. whirl, 2. fluid, 3. electron, 4. telescope, 5. spinning, 6. mounted, 7. precursors

8. The treasure _____ of ancient artifacts was a museum's dream come true.
n. a valuable collection of rare or interesting things, usually on the earth
9. The company's stock gives a high _____.
n. the total output of crops, profits, etc. that are produced; (verb) to produce or supply helpful something, such as a profit, an amount of food, or information
10. The sun's _____ shone through the window and illuminated the room.
n. a long, sturdy piece of timber, metal, or other material used to support a structure or span a distance; a ray or stream of light emitted by a source
11. The sponge takes up the _____ well.
n. a substance, such as water or oil that flows freely and is neither a solid nor a gas
12. She took a _____ class at the gym to improve her cardiovascular fitness.
n. the act of rotating rapidly around an axis; in the context of textiles, the process of twisting fibers together to form thread or yarn
13. The recent economic downturn has resulted in _____ layoffs.
adj. enormous amount; very heavy and solid
14. The spaceship began to burn up as it approached the Earth's _____.
n. the mass of air that surrounds the Earth; the pervading tone or mood of a place, situation, or creative work
15. We always _____ all critical information independently.
v. to check that something exists or is true, or to prove that something is correct

ANSWERS: 8. trove, 9. yield, 10. beam, 11. liquid, 12. spinning, 13. massive, 14. atmosphere, 15. verify

16. He had a deep passion for extragalactic _____ and spent hours observing the night sky.
- n.* the scientific study of objects and matter outside the Earth's atmosphere, especially the positions, motions, and evolution of celestial bodies
17. Roads _____ from the famous building in the center of the city.
- v.* to spread out or emit something, such as light or heat, in all directions
18. This exam requires excellent _____ to pass.
- n.* the ability to focus all your time and energy on one thing without thinking about anything else.
19. Two countries acted together as if by _____.
- adj.* closely and firmly united or packed together, using very little space; smaller than is usual
20. Tourists gathered at the _____ base to take photos and admire the view.
- n.* a tower or other structure that is equipped with a powerful light designed to guide ships safely to harbor or warn them of impending danger
21. The _____ of the Earth causes day and night.
- n.* the action or process of moving in a circle around an axis or center
22. The European Central Bank is Europe's _____ of the Federal Reserve.
- n.* having the same value, quality, meaning, purpose, etc.
23. The rocket engine is used to put the satellite into _____.
- n.* the path of an object around a celestial body, especially a planet, star, or moon, under the influence of gravity.

ANSWERS: 16. astronomy, 17. radiate, 18. concentration, 19. compact, 20. lighthouse's, 21. rotation, 22. equivalent, 23. orbit

24. He has a short _____.

- n.* a small part in an electrical device or machinery that can interrupt the flow of electrical current when it is overloaded; (verb) to become plastic or fluid or liquefied from heat

25. That candidate does not have _____ means to win an election with certainty.

- adj.* adequate; enough for a particular purpose or requirement

26. It is important to _____ safety procedures in the workplace to prevent accidents.

- v.* to watch or notice something carefully, often to gather information or insights; to take note of something or someone; to celebrate or commemorate a special event or occasion

27. The doctor ordered an _____ to see if there was any damage to the bones.

- n.* a type of electromagnetic radiation that has a wavelength shorter than visible light allowing hidden objects such as bones and organs inside the body to be photographed

28. The _____ scarcity most severely impacted the manufacturing sector

- n.* a substance that is typically burned to generate heat or energy

29. The _____ fireworks display was the highlight of the festival.

- adj.* striking or impressive to look at or in performance or achievement

30. The earth's _____ of rotation is tilted 66.5 degrees to the ecliptic plane.

- n.* a real or imaginary straight line through a body or figure around which the object turns; a group of countries in special alliance

ANSWERS: 24. fuse, 25. sufficient, 26. observe, 27. X-ray, 28. fuel, 29. spectacular, 30. axis

31. Everyone was aware of the impending _____ but was unable to prevent it.
n. death, destruction, or some other terrible situation that cannot be avoided
32. His hypothesis concerns the role of an _____ field in human health.
adj. of or relating to the magnetism produced by electric charge in motion
33. Most countries prohibit sexual activity between certain close _____.
adj. considered and evaluated through comparison with something else
34. On three sides, mountains _____ the settlement.
v. to be all around something or somebody
35. Please refrigerate the meat, or it will _____.
v. to decay, or cause something to decay, naturally and gradually
36. I cut the cheese into small _____ for the salad.
n. a three-dimensional shape with six square faces that are all equal in size; (of mathematics) the result of multiplying the number by itself three times
37. The organizational _____ of start-ups is often flat and straightforward.
n. the way of construction of something and the arrangement of its parts, or a complex thing constructed of many parts
38. The entire mountain is covered in _____ rainforest.
adj. containing a large number of people or something with little space between them
39. Her research team made an important _____.
n. the act or process of finding information, a place, or an object, or learning about something that was previously not known

ANSWERS: 31. doom, 32. electromagnetic, 33. relatives, 34. surround, 35. rot, 36. cubes, 37. structure, 38. dense, 39. discovery

40. The smell of freshly baked cookies in the kitchen _____ me.
- v.* to tease or torment by presenting something desirable but out of reach or unattainable; to tempt or lure with the promise of something desirable
41. The _____ between the two companies resulted in a stronger market position.
- n.* the process of two or more companies joining together and becoming one entity, often to improve their competitive position or achieve synergies in operations or distribution
42. She has been practicing an ice _____ routine for months
- n.* a type of footwear that has a blade attached to its sole for skating on ice or other hard surfaces; an activity or sport that involves gliding on skates on ice or other hard surfaces
43. The _____ wires in the electrical circuit caused a power outage.
- adj.* joined together or combined into one; blended or integrated in a way that creates a new entity
44. The solar wind is composed almost entirely of electrons and _____.
- n.* a very small particle with a positive charge equal to the negative charge of an electron that forms part of the nucleus of all atoms
45. The MRI machine uses _____ to produce images of the body's internal organs.
- n.* an object or substance that can attract certain materials, such as iron or steel
46. A rainbow is a natural _____.
- n.* something that exists and can be perceptible, especially one that is not fully understood

ANSWERS: 40. tantalized, 41. merger, 42. skate, 43. fused, 44. protons, 45. magnets, 46. phenomenon

47. It's notoriously challenging to _____ birth rates.

- v.* to state beforehand that something will happen in the future, mainly based on knowledge or experience

48. The _____ of tectonic plates can result in new mountain ranges, such as the Himalayas or the Alps.

- n.* an instance of two or more objects or entities crashing into each other, usually resulting in damage, impact, or conflict

49. DNA is stored in the _____ of a cell.

- n.* the central and most important part of something; (biology) a part of the cell containing DNA and RNA and responsible for growth and reproduction; (physics) the very dense central region of an atom

50. 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)

51. Many countries have now agreed to a treaty banning the use of _____ weapons.

- adj.* of or relating to or constituting the nucleus of an atom; deriving destructive energy from the release of atomic energy

52. The pirates searched for buried _____ in the dunes.

- n.* a valuable or desirable possession; something that is cherished or held dear; a collection of valuable objects or money that is hidden or protected

53. The corporation _____ dominated the entire tobacco business.

- adv.* finally, particularly after a long time or a lot of struggle, complications, and so on

ANSWERS: 47. predict, 48. collision, 49. nucleus, 50. gravitational, 51. nuclear, 52. treasure, 53. eventually

54. The chemist worked with a _____ catalyst to speed up the reaction.
- n.* a dense, precious, silvery-white metal with the atomic number 78 and the symbol Pt that is highly resistant to corrosion and tarnishing, often used in jewelry, coins, and industrial applications
55. The inspector discovered _____ bolts under the fuel rods.
- adj.* not securely fixed or fastened in place or able to be detached or separated from something
56. 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
57. Her dog is her excellent _____.
- n.* a person or an animal with whom you spend a lot of time, or you travel
58. I need to _____ my car regularly to prevent any major mechanical issues.
- v.* to continue to uphold or sustain; to keep in a particular state or condition; to assert or declare something to be true
59. She _____ the toothpaste tube from the middle to get the last bit out.
- v.* to apply pressure from two or more sides; to hold someone or something tightly in your arms, usually with fondness
60. That astronomical _____ stands at the top of the mountain.
- n.* a building designed and equipped to observe the planets, the stars, the weather, etc.
61. These heavy rains caused _____ floods on several islands.
- n.* a sudden intense burst of radiant energy; a momentary brightness

ANSWERS: 54. platinum, 55. loose, 56. helium-filled, 57. companion, 58. maintain, 59. squeezed, 60. observatory, 61. flash

62. Einstein was an outstanding and famous _____ of the 20th century.
n. a scientist who specializes in the field of physics
63. Big techs are now eager to develop _____ computers.
n. the smallest amount or unit of something, especially (electromagnetic) energy
64. I need to _____ all of my notes into a manageable summary for my presentation.
v. to reduce the volume or size of something, often by removing water or other liquid; to make something shorter, more concise, or more concentrated
65. He _____ in the dazzling sunlight.
v. to shut and open the eyes quickly; to gleam or glow in a regular or intermittent way
66. Both parties are now entirely ideologically _____.
v. to put or arrange two or more things in a straight line or to form a straight line
67. 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
68. A _____ star is incredibly dense and has a strong gravitational pull.
n. a subatomic particle with no electric charge that is present in all atomic nuclei except those of ordinary hydrogen
69. Canada _____ on the United States.
v. to move forward by leaps and bounds; to form the boundary of something

ANSWERS: 62. physicist, 63. quantum, 64. condense, 65. blinked, 66. aligned, 67. compressed, 68. neutron, 69. bounds

70. The bread's _____ was golden brown and crispy.

- n.* a hard outer layer that forms on the surface of a liquid as it cools or on a solid as a result of exposure to air or moisture

71. Carbon has an _____ mass of 12.

- adj.* of or relating to atom (= the smallest component of an element)

72. The North _____ is the northernmost point on Earth.

- n.* one of two antipodal points where the Earth's axis of rotation intersects the Earth's surface; a long, slender, rounded rod, typically of wood or metal, used as a support or to hang something

73. Any rotating body has _____ momentum about its center of mass.

- adj.* measured by an angle or by the rate of change of an angle; having angles or an angular shape

74. The _____ between the two countries was causing tension.

- n.* the force that opposes motion between two objects in contact, especially by producing heat and wear, and is proportional to the normal force between the objects

75. He was studying _____ in an attempt to understand the origins of the universe.

- n.* the branch of physics concerned with the study of the properties and behavior of celestial objects and the physical processes that govern the behavior and evolution of the universe

76. The dancers practiced the steps of the _____ meticulously to perfect their performance.

- n.* a ballroom dance in triple time that originated in Vienna and is characterized by a flowing, graceful style and a strong accent on the first beat of each measure

ANSWERS: 70. crust, 71. atomic, 72. Pole, 73. angular, 74. friction, 75. astrophysics, 76. waltz

77. A _____ star is a system in which two stars revolve around each other.
n. a system of numbers that uses only two digits, 0 and 1
78. _____ gas is used to inflate car tires because it does not react with rubber.
n. a chemical element with the symbol N and atomic number 7, which is a highly reactive element that forms part of many compounds, including amino acids and proteins
79. The election was a _____ success for the Whigs.
adj. worthy of attention because unusual or special
80. The earthquake was a _____ from which the local people never recovered.
n. a sudden violent event that changes the earth's environment, such as a flood or a war
81. The government tried to _____ the commercialization of this development.
v. to make something faster or earlier; to cause to develop or progress more quickly
82. Several cities are experiencing _____ high unemployment rates.
adv. in a way that is very difficult to believe; exceedingly or extremely
83. The _____ explosion created a bright new star in the night sky.
n. a powerful and luminous explosion that occurs in some stars, resulting in an extremely bright, short-lived object that later fades into a supernova remnant
84. The _____ of people who do not own property is politically impotent.
n. a large amount of a substance with no definite shape or form; a large number of people or things grouped or crowded together

ANSWERS: 77. binary, 78. Nitrogen, 79. remarkable, 80. cataclysm, 81. accelerate, 82. incredibly, 83. supernova, 84. mass

85. We must pass through the narrow _____ with a stream running through it.
n. a deep narrow valley between hills or mountains, usually with steep sides and a river running through it
86. There are various hypotheses concerning the _____ of life.
n. the first existence or beginning of something
87. The lighthouse served as a _____ to guide ships safely into port.
n. a light or other visible object serving as a signal, guide, or warning
88. The sudden _____ of the king was a shock to everyone and threw the kingdom into chaos.
n. death or the end of something
89. The roof finally _____ after three days and three nights of heavy snowfall.
v. to fall down or give way suddenly, often after breaking apart
90. They watched the train _____ into the distance.
v. to cease to exist or be visible
91. The era of the industrial revolution was a crucial _____ of history.
n. any stage in a series of events, change, or development
92. The interests of the two countries _____.
v. to hit something violently when moving
93. This smartphone has a collision _____ function.
n. the act of discovering or identifying the presence of something

ANSWERS: 85. gorge, 86. origin, 87. beacon, 88. demise, 89. collapsed, 90. disappear, 91. phase, 92. collide, 93. detection

94. The company hired a new advertising agency to _____ its marketing efforts.
v. to support or strengthen, often by adding extra assistance or resources
95. The pond's _____ was around five feet.
n. the distance between the top and bottom of something; between the top surface and a distance below it
96. The chef used the _____ of the fish to make a flavorful broth.
n. the internal organs of a human or animal; the visceral organs, especially the stomach, and intestines; the internal parts of something
97. I always order spinach _____ at my favorite Italian restaurant.
n. a type of dish consisting of layers of pasta, cheese, meat, or vegetables, typically topped with tomato sauce and baked in an oven; a traditional staple of Italian cuisine
98. The coach was _____ with the players for their lack of effort during the game.
adj. extremely angry; full of rage
99. The _____ and the oxygen react and then form water.
n. the chemical element that is the lightest gas is colorless, odorless, tasteless, and combines with oxygen to form water
100. Gamma _____ penetrate body tissues and cause cell damage.
n. a narrow line of light, heat, or another form of energy
101. 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

ANSWERS: 94. bolster, 95. depth, 96. innards, 97. lasagna, 98. furious, 99. hydrogen, 100. rays, 101. pulsar

102. It was the first time in a long time that I felt truly _____ and at peace.
adj. not excited, angry, or nervous; free from wind, large waves
103. _____ rays are a type of high-energy radiation that can be harmful to living organisms.
n. the third letter of the Greek alphabet; a type of radiation having the shortest wavelength and highest energy of electromagnetic waves
104. Many businesses felt the _____ effect of the economy's decline.
n. a small wave on the surface of a liquid, typically caused by an object falling into it or a slight wind
105. The _____ of the tornado was massive and destructive.
n. a mass of whirling air, water, dust, or smoke, especially a whirlpool or whirlwind
106. The _____ force of the earth keeps our planet spinning.
adj. having the properties of attracting or repelling certain materials containing iron or steel
107. The volcanic _____ caused widespread destruction and left the area covered in ash.
n. an instance of a sudden and violent release of lava, gas, or ash from a volcano; a sudden outburst or explosion of something
108. Trees absorb _____ dioxide and give off oxygen.
n. a chemical element that can be found in pure form as diamond or graphite, and it is also an essential part of coal and oil and is found in all plants and animals
109. This artwork is _____ of her work.
adj. having the usual characteristics or traits of a specific group of things

ANSWERS: 102. calm, 103. Gamma, 104. ripple, 105. vortex, 106. magnetic, 107. eruption, 108. carbon, 109. typical

110. The Milky Way _____ has numerous water-bearing planets.

- n.* an independent group of stars, interstellar gas, dark matter, etc., in the universe, bound together by gravity

111. The astronaut felt weightless in space due to the absence of _____.

- n.* the force that attracts a body towards the center of the earth or towards any other physical body having mass; a manner that is solemn

112. It's an excellent opportunity to _____ our networking.

- v.* to improve the value or usefulness of something such as a machine, computer system, etc., or to replace it with something newer or of a higher standard

113. They worked hard to _____ the nature of their native lands.

- v.* to keep or maintain a particular quality, feature, etc., especially to prevent it from decaying, being damaged, or being destroyed

114. Animal protection groups call for an end to animal testing in a _____.

- n.* a workplace for doing scientific research or teaching science; a lab

115. The cardiac monitor displays the intensity of your _____.

- n.* the regular heartbeat as it sends blood around the body, especially when it is felt at the wrist or side of the neck; a solid regular vibration of sound, electric current, light, or other waves

116. He studied the _____ of radiation.

- n.* the science of matter and energy and their interactions

117. The _____ is about 13.8 billion years old.

- n.* everything that exists, especially all physical matter, including planets, stars, galaxies, and all other forms of matter and energy

ANSWERS: 110. galaxy, 111. gravity, 112. upgrade, 113. preserve, 114. laboratory, 115. pulse, 116. physics, 117. universe

118. The old building _____ in a fiery inferno.

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

119. The security camera has _____ four intruders.

- v.* to find or recognize something, especially something difficult to see, hear, etc.

120. What is the _____ of the consumption tax in the United States?

- n.* the number, amount, or rate of something, which is usually the amount per hundred

121. The CEO _____ expressed her disappointment with the project's progress.

- adv.* not going straight to the point; implying or suggesting something

ANSWERS: 118. exploded, 119. detected, 120. percentage, 121. indirectly