7004 Praxis Study Guide (7001)

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When searching for specific content it will be helpful to use the Ctrl+F feature to navigate the document. Please do not hesitate to contact me if you have any questions. This Study Guide is developed using content that you NEED to know and understand according to The PRAXIS® Study Companion - Elementary Education: Multiple Subjects (7001). I have defined and provided examples for each section of 5001 according to the content listed in the study companion.

Reading 7002

- **What is phonemic awareness?**

Phonemic awareness is the ability to recognize and manipulate the individual sounds (phonemes) in spoken words. It involves understanding that words are made up of distinct sounds and being able to identify, isolate, and manipulate those sounds without relying on the written form of the word

Example:

Let's focus on the word "ship."

Rhyming: Ask the child to identify words that rhyme with "ship," such as "lip" or "flip."

Blending: Say the individual sounds /sh/ - /i/ - /p/ aloud, and then ask the child to blend them together to form the whole word "ship."

Segmenting: Say the word "ship" and ask the child to break it into its individual sounds: /sh/ - /i/ - /p/.

- **What is phonological awareness?**

Phonological awareness is a broader concept that includes various skills related to the recognition and manipulation of sounds in spoken language. It encompasses a range of abilities, including phonemic awareness. While phonemic awareness specifically focuses on identifying and manipulating individual phonemes (sounds) within words, phonological awareness extends to a broader understanding of the sound structure of language.

- **Benjamin Bloom & Blooms Taxonomy**

Benjamin Bloom is an educational psychologist, and he is associated with Bloom's Taxonomy. Bloom's Taxonomy is a framework used for classifying educational objectives into different levels of complexity and specificity. The taxonomy consists of six levels, starting from the basic recall of information to higher-order thinking skills.

These levels are:

1)Remembering: Recalling information from memory.
2)Understanding: Grasping the meaning of information.

3)Applying: Using knowledge in a new situation.
4)Analyzing: Breaking down information into parts for better understanding.
5)Evaluating: Making judgments about the value of information or methods.
6)Creating: Generating new ideas, products, or ways of viewing things.

- **Jean Piaget & Cognitive Development**

Jean Piaget (1896–1980) was a pioneering figure in the field of developmental psychology. His work focused on the cognitive development of children, and he proposed a theory of cognitive development that has had a significant impact on education and psychology. Piaget's theory suggests that children progress through distinct stages of cognitive development, each marked by different ways of thinking and understanding the world.

Piaget's stages of cognitive development are as follows:

Sensorimotor Stage (0-2 years): Infants learn through their senses and motor actions.
Preoperational Stage (2-7 years): Children begin to use symbols and language but struggle with logical reasoning.
Concrete Operational Stage (7-11 years): Children develop the ability for logical reasoning about concrete events and objects.
Formal Operational Stage (11 years and older): Adolescents and adults can think abstractly, use hypothetical reasoning, and engage in deductive thinking.

- **What does it mean to make an inference?**

Making an inference involves drawing conclusions or making educated guesses based on available information, evidence, or reasoning rather than explicit statements. It is a cognitive process where individuals use their existing knowledge and context clues to derive meaning or make predictions about something that is not explicitly stated.

Example: Imagine you have a story about a character named Alex who comes to school wearing a raincoat, boots, and carrying an umbrella. The story mentions that Alex's backpack is dripping wet.
Why do you think Alex is dressed in a raincoat, boots, and carrying an umbrella, and why is the backpack wet? Make an inference.

- **What is a constant blend?**

A consonant blend is a linguistic term that refers to the combination of two or more consonant sounds in a sequence within a word, each retaining its individual sound. Consonant blends are different from digraphs, where two letters combine to represent a single sound. In blends, each consonant maintains its distinct sound.

Examples of consonant blends include:

Bl: block, blend
Br: break, bring
Cl: clap, clip
Cr: crab, crop
Tr: tree, truck

- **Open syllable pattern?**

An open syllable pattern occurs when a syllable ends with a vowel and the vowel is pronounced with its long sound. In an open syllable, there is no consonant following the vowel. This pattern allows the vowel to "say its name" or produce its long sound.

Examples of words with open syllables include:

ba-by
ti-ger
re-cent
o-pen
Go-ing

- **What is a compound sentence?**

A compound sentence is a sentence that consists of two or more independent clauses (complete sentences) joined together by coordinating conjunctions, punctuation, or both. The independent clauses in a compound sentence are equal in importance and can stand alone as separate sentences.

The coordinating conjunctions commonly used to join independent clauses in a compound sentence are:

and
but
or
nor
for
yet
So

Examples:

1)She enjoys playing the piano, and he likes to paint.

Two independent clauses: "She enjoys playing the piano." and "He likes to paint."
Conjunction: "and"

2)The sun was shining brightly, so we decided to have a picnic in the park.

Two independent clauses: "The sun was shining brightly." and "We decided to have a picnic in the park."
Conjunction: "so"

3)I have a busy schedule, but I always find time for my hobbies."

Two independent clauses: "I have a busy schedule." and "I always find time for my hobbies."
Conjunction: "but"

- **What is a complex-compound sentence?**

A complex-compound sentence is a type of sentence that contains both independent clauses (complete sentences) and dependent clauses (incomplete sentences).

Example:

Although it was raining, they decided to go for a walk, and they brought umbrellas just in case.

Independent Clause 1: "They decided to go for a walk."
Dependent Clause: "Although it was raining."
Independent Clause 2: "They brought umbrellas just in case."

- **What are simple sentences?**

A simple sentence is a sentence that consists of just one independent clause. It typically contains a subject and a predicate and expresses a complete thought. Simple sentences are straightforward and concise.

Example:

"The cat sat on the windowsill."

In this example:

Subject: "The cat"
Predicate: "sat on the windowsill"

- **What is a comma splice?**

A comma splice is a grammatical error that occurs when two independent clauses (complete sentences) are incorrectly joined together with just a comma, without the appropriate coordinating conjunction or proper punctuation. This creates a connection between the two independent clauses that is not grammatically sound.

Example

Incorrect:
"The sun was setting, so she decided to go for a walk."

In this example, "The sun was setting" and "she decided to go for a walk" are both independent clauses. The error occurs because they are connected by just a comma without a coordinating conjunction (such as "and," "but," "or," etc.) or without proper punctuation.

To correct the comma splice, you can use one of the following methods:

Add a Coordinating Conjunction:
"The sun was setting, so she decided to go for a walk."

Use a Semicolon:
"The sun was setting; she decided to go for a walk."

Make Separate Sentences:
"The sun was setting. She decided to go for a walk."

Any of these corrections ensures proper punctuation and grammatical structure between the two independent clauses.

- **Types of Poetry**

Sonnet:	Haiku:	Limerick:

A 14-line poem, typically written in iambic pentameter. Example: William Shakespeare's Sonnet 18 "Shall I compare thee to a summer's day?"	A traditional Japanese form with three lines and a 5-7-5 syllable structure. Example by Matsuo Basho: "An old silent pond... (5) A frog jumps into the pond— (7) Splash! Silence again. (5)"	A humorous poem with five lines, often with a specific rhyme scheme (AABBA). Example: "There once was a man from Peru (A) Who dreamt he was eating his shoe (A) He awoke with a fright (B) In the middle of the night (B) To find that his dream had come true. (A)"
Free Verse: Poetry without a regular meter or rhyme scheme. Example by Walt Whitman: "I celebrate myself, (no rhyme) And what I assume you shall assume, (no rhyme) For every atom belonging to me as good belongs to you."	Epic: A lengthy narrative poem that tells a heroic story. Example: Homer's "The Iliad" and "The Odyssey."	Ballad: A narrative poem often set to music, typically telling a story of tragedy or romance. Example: "The Rime of the Ancient Mariner" by Samuel Taylor Coleridge.

- **Myth, fables, legends**

Myths: Myths are traditional stories that explain the beliefs, practices, and natural phenomena of a culture. They often involve gods, goddesses, and legendary beings. Example: Greek mythology includes myths about Zeus, Hera, and the adventures of heroes like Hercules. The story of the creation of the world in various cultures is also considered a myth.	Fables: Fables are short stories that typically feature animals as characters and convey moral lessons or messages. Animals often exhibit human-like qualities and behaviors. Example: Aesop's Fables, such as "The Tortoise and the Hare," where the slow and steady tortoise wins a race against the fast but overconfident hare.	Legends: Legends are traditional stories based on real or historical events but often include elements of exaggeration or supernatural elements. They focus on heroic figures and their deeds. Example: The legend of King Arthur and the Knights of the Round Table, which includes tales of chivalry, the quest for the Holy Grail, and the legendary sword Excalibur.

- **Figurative language**

Simile: A comparison between two different things using "like" or "as." Example: "Her smile was as bright as the sun."	Metaphor: A direct comparison between two unrelated things, stating that one thing is another. Example: "The world's a stage."	Personification: Giving human qualities to non-human entities or objects. Example: "The wind whispered through the trees."	Hyperbole: Exaggeration for emphasis or effect. Example: "I've told you a million times!"
Alliteration: Repetition of initial consonant sounds in a sequence of words.	Onomatopoeia: Words that imitate the sound they represent. Example: "The buzzing	Idiom: An expression with a figurative meaning different from its literal	Pun: A play on words that relies on multiple meanings or similar-sounding words.

Example: "Peter Piper picked a peck of pickled peppers."	bees flew around the hive."	interpretation. Example: "Kick the bucket" means to die.	Example: "Time flies like an arrow; fruit flies like a banana."

- **Types of Writing**

Narrative Writing: Tells a story and typically includes characters, settings, and a plot. Example: A short story about a character's journey to self-discovery.	Expository Writing: Presents information, explains a topic, or provides analysis. Example: An article explaining the process of photosynthesis.	Persuasive Writing: Convinces the reader to adopt a particular opinion or take a specific action. Example: An essay arguing for the importance of environmental conservation.

- **Parts of speech**

Noun: A word that represents a person, place, thing, or idea (e.g., dog, city, love).	Verb: A word that describes an action or state of being (e.g., run, eat, is).	Adverb: A word that describes or modifies a verb, adjective, or other adverb (e.g., quickly, very, well).
Pronoun: A word used to replace a noun (e.g., he, she, it).	Adjective: A word that describes or modifies a noun (e.g., happy, blue, tall).	Preposition: A word that shows the relationship between a noun (or pronoun) and another word in the sentence (e.g., in, on, under).

Conjunction: A word that connects words, phrases, or clauses (e.g., and, but, or).

Interjection: A word or phrase used to express strong emotion or surprise (e.g., wow, oh, hey).

- **1,2, and 3 tier vocabulary**

The concept of 1-3 tier vocabulary refers to the three tiers of words based on their frequency and utility in everyday language. These tiers help categorize words based on their commonality and usage

Tier 1 Vocabulary (Basic Vocabulary): Definition: Common, everyday words that are widely known and used. These words are generally acquired early in life. Examples: Dog, cat, house, happy, run, play.	Tier 2 Vocabulary (General Academic Words): Definition: More advanced words that are often used in academic settings and across various disciplines. They are essential for understanding and expressing complex ideas. Examples: Analyze, evaluate, demonstrate, strategy, summarize.	Tier 3 Vocabulary (Domain-Specific Words): Definition: Specialized or technical words that are specific to certain fields or subjects. These words are often used in specific contexts and may not be as commonly known outside those domains. Examples: Photosynthesis, algorithm, mitochondria, quasar.

- **Public Speaking, delivering a speech**

Active listening Active listening involves fully concentrating, understanding, and responding to a speaker. While	**Preparing for a Speech** Know Your Audience:

it may not always be evident, there are several signs that someone is actively listening during a speech. Here are some key indicators: Eye Contact: Active listeners maintain consistent and appropriate eye contact with the speaker. It shows engagement and attentiveness. Nodding: Nodding the head in agreement or understanding is a non-verbal cue that someone is following and processing the speaker's message. Body Language: Open and receptive body language, such as facing the speaker, leaning slightly forward, and avoiding distracting movements, indicates active listening. Minimal Verbal Feedback: Providing brief verbal affirmations like "I see," "Go on," or "Interesting" shows that the listener is engaged and encourages the speaker to continue. Reflective Responses: Active listeners may respond with reflective statements that summarize or paraphrase what the speaker said, demonstrating comprehension. Asking Questions: Asking relevant questions about the content of the speech indicates a genuine interest and an effort to understand the information. Avoiding Distractions: Actively listening individuals minimize distractions, such as checking their phones or looking around the room, to stay focused on the speaker. Empathy and Emotional Responses: Displaying empathy or responding emotionally to the speaker's message indicates a connection and understanding of the emotional tone of the speech. Note-Taking: Taking notes can be a sign of active listening, especially in educational or professional settings. It shows an intention to retain and understand the information. Summarizing: Summarizing key points or asking for clarification indicates that the listener is actively processing and making sense of the information.	Understand the demographics, interests, and expectations of your audience. Tailor your message to resonate with them. Define Your Purpose: Clearly articulate the purpose of your speech. Whether it's to inform, persuade, entertain, or inspire, knowing your goal will guide your content. Organize Your Content: Structure your speech with a clear introduction, body, and conclusion. Use a logical flow, and organize your points in a way that the audience can follow easily. Craft a Compelling Opening: Capture your audience's attention from the start. Consider starting with a relevant quote, anecdote, or engaging question to draw them in. Practice, Practice, Practice: Rehearse your speech multiple times. Practice helps you become familiar with your content, improves your delivery, and boosts confidence. Work on Your Delivery: Pay attention to your tone, pitch, pace, and body language. Practice gestures and facial expressions to enhance your message. Use Visual Aids Wisely: If using slides or visual aids, ensure they complement your speech. Keep visuals simple, clear, and relevant to avoid distracting the audience. Anticipate Questions: Consider potential questions your audience might have and prepare thoughtful responses. This helps you feel more prepared for Q&A sessions. Manage Nervousness: Accept that a certain level of nervousness is normal. Practice relaxation techniques, deep breathing, or visualization to manage anxiety. Time Yourself: Be mindful of your speech duration. Practice within the allocated time to ensure you cover all key points without rushing. Seek Feedback: Practice in front of a trusted friend, family member, or colleague. Constructive feedback can provide valuable insights and help you make improvements. Record Yourself: Record your practice sessions and review them.

	This allows you to identify areas for improvement in your delivery, body language, and overall presentation. Adapt to the Venue: Familiarize yourself with the speaking venue. Test audiovisual equipment, check the layout, and adjust your delivery based on the room size and setup. Be Authentic: Be yourself. Authenticity builds a connection with the audience. Share personal stories or experiences if relevant to your message.

- **Defines fluency and related terms (e.g., accuracy, rate, prosody)**

Accuracy:
Definition: The ability to read words correctly. Accurate reading is crucial for comprehension.

Example: If a student reads the word "cat" as "bat," there is an accuracy error.

Rate:
Definition: The speed at which a person reads. Fluent readers read at an appropriate rate without sacrificing accuracy or comprehension.

Example: If a student reads very slowly, taking a long time to finish a sentence, their rate might be considered too slow.

Prosody:
Definition: The rhythm, intonation, and expression used when reading aloud. Prosody contributes to the overall fluency and comprehension of the text.
Example: A reader with good prosody varies pitch and tone, uses appropriate pauses, and conveys the meaning of the text effectively.

Phrasing:
Definition: Grouping words together in meaningful chunks or phrases. Fluent readers naturally use phrasing to enhance comprehension.
Example: Instead of reading each word in isolation, a fluent reader groups words together to convey the intended meaning of a sentence.

Automaticity:
Definition: The ability to recognize and read words effortlessly and quickly. Automatic word recognition is a key component of fluency.

Example: If a student can quickly and accurately read common words without hesitation, they demonstrate automaticity.

Chunking:

Definition: Breaking down a longer text into smaller, meaningful units. Fluent readers naturally chunk text for better comprehension.

Example: Instead of reading each word separately, a reader might chunk words into phrases or clauses for smoother reading.

- **Explain the impact of fluency on comprehension**

Fluency, characterized by accurate, rapid, and expressive reading, profoundly influences comprehension. When readers achieve fluency, they can efficiently process and recognize words, allowing for increased focus on understanding the meaning of the text. The automaticity in word recognition, combined with effective phrasing, pacing, and expression, reduces cognitive load and enhances engagement, ultimately leading to improved comprehension as readers can more effectively navigate and interpret the content.

- **Theme**

The theme of a text is the underlying message or central idea that the author wants to convey.

Example: In a story where the main character faces numerous challenges and setbacks but continues to persevere and overcome adversity, the theme of resilience emerges. The narrative may illustrate how the character's determination, strength, and ability to bounce back from difficulties lead to personal growth or success. This theme goes beyond the specific events in the story and explores a broader idea about the human capacity to endure and thrive in the face of challenges. The theme of resilience is applicable to various contexts and resonates with the universal human experience of facing obstacles and finding the strength to overcome them

- **POV 1,2, and 3rd person limited/omniscient**

Point of View (POV): Point of view refers to the narrator's position in relation to the story being told. The choice of POV significantly influences how the narrative is presented and how readers perceive the events and characters.

First Person POV: Definition: The narrator is a character in the story and uses first-person pronouns (I, me, we). The reader experiences the events through the narrator's personal perspective. Example: "I walked into the old house and felt a shiver down my spine as if I were being watched."	Second Person POV: Definition: The narrator directly addresses the reader using second-person pronouns (you). This POV is less common in narrative fiction but is sometimes used for instructional or interactive purposes. Example: "You enter the mysterious cave, unsure of what lies ahead. Your heart races with anticipation."
Third Person Limited POV: Definition: The narrator is external to the story and uses third-person pronouns (he, she, they). The narration is limited to the thoughts and feelings of one character, providing insights into their perspective. Example: "She gazed out of the window, wondering if this journey would lead to the answers she sought."	Third Person Omniscient POV: Definition: The narrator is external and all-knowing, having access to the thoughts, feelings, and perspectives of multiple characters. The narrator can provide a comprehensive view of the story. Example: "As the sun set, the town's secrets unfolded before the omniscient narrator, revealing the intertwined lives of its inhabitants."

- **Stages of writing**

Pre-Writing:

Tasks: Brainstorming, researching, planning, outlining.
Goals: Generate ideas, gather information, and establish a framework for the writing.

Drafting:
Tasks: Putting thoughts into words, composing the initial version of the piece.
Goals: Develop a complete and coherent draft, focusing on getting ideas down without worrying too much about perfection.

Revising:
Tasks: Reviewing and making substantial changes to the content, structure, and organization.
Goals: Strengthening the overall message, improving clarity, refining language, and addressing any issues with the draft.

Editing:
Tasks: Focusing on grammar, punctuation, spelling, and sentence structure.
Goals: Ensure correctness, clarity, and consistency in language use. Correct any errors or awkward phrasing.

Proofreading:
Tasks: A final review for small errors or typos.
Goals: Polish the piece by catching any remaining mistakes and ensuring a clean, error-free final version.

Publishing (or Submission):
Tasks: Preparing the work for its intended audience, whether it's submitting to a publication or sharing it more widely.
Goals: Present a final, polished version of the writing to the intended audience.

- **Developmental stages of writing (e.g., picture, scribble) BE ABLE TO IDENTIFY**

1) Scribbling (Pre-Writing Stage):

Characteristics: Random marks on paper with no specific meaning. May involve large arm movements.

2) Drawing and Letter-Like Forms:

Characteristics: Begins to incorporate shapes and may resemble letters or numbers. May include recognizable objects.

3) Letter Formation (Early Emergent Writing):

Characteristics: Attempts to write individual letters, often with irregular sizes and shapes. Limited awareness of spacing.

4) Early Phonetic (or Invented) Spelling:

Characteristics: Attempts to represent sounds in words using invented spellings. May involve unconventional spelling patterns.

5) Transitional Spelling:

Characteristics: Begins to use more conventional spelling patterns and shows an understanding of word structure. May still have some errors.

6) Conventional Spelling (Fluent Writing):

Characteristics: Achieves correct spelling of most words. Writing is fluent, and conventions are more consistently applied.

- **Primary and secondary source**

Primary Source:
A primary source is an original, firsthand document or artifact that provides direct evidence or information about a particular subject or event. It comes directly from the source or time under investigation. Primary sources are often created contemporaneously with the events they describe.

Examples of Primary Sources:

Original documents (e.g., letters, diaries, speeches)
Official records (e.g., birth certificates, government reports)
Eyewitness accounts
Photographs and videos taken during the event
Artifacts and objects from the time period
Newspapers and magazine articles written at the time
Oral history interviews with individuals who experienced the events firsthand

Secondary Source:
A secondary source is an interpretation or analysis of primary sources. It is created by someone who did not directly experience the events or time period under consideration. Secondary sources provide commentary, analysis, or evaluation of primary sources and often aim to interpret historical events or convey scholarly opinions.

Examples of Secondary Sources:

History books and textbooks
Biographies and autobiographies
Documentary films that analyze historical events
Review articles in academic journals
Encyclopedias and other reference works
Commentaries and critiques written by historians
Magazine or newspaper articles that provide analysis or interpretation

- **Root prefix suffixes**

Root:
A root is the basic, foundational part of a word that carries its core meaning. It is the element from which other words are formed.

Example: "Bio-" (meaning life)
Words: Biology, biography, biodegradable

Prefix:
A prefix is a group of letters added to the beginning of a word to change its meaning or create a new word.

Example: "Un-" (meaning not)
Words: Unhappy, undo, unclear

Suffix:
A suffix is a group of letters added to the end of a word to change its meaning or transform it into a different word class (e.g., turning a noun into an adjective).

Example: "-ful" (meaning full of)
Words: Beautiful, joyful, successful

- **Onset/rime**

Onset: The onset of a syllable is the initial consonant or consonant cluster that precedes the vowel. It is the sound or sounds that come before the vowel in a syllable.

Rime: The rime of a syllable is the vowel and any consonant sounds that follow it. It is the part of the syllable that includes the vowel and the sounds that come after it.

Example:
Let's take the word "cat."

Onset: The onset is the initial consonant sound, which is "c."

Rime: The rime is the vowel and any consonant sounds that follow it, which are "at."

So, in the word "cat":

Onset: "c"
Rime: "at"

MATH 7003

- **/Place Value**

3,456

Thousands Place (4): The digit 4 represents 4 thousands.
Hundreds Place (5): The digit 5 represents 5 hundreds.
Tens Place (6): The digit 6 represents 6 tens.
Ones Place (3): The digit 3 represents 3 ones.

So, in the number 3,456:

The digit 4 is in the thousands place and has a place value of 4,000.
The digit 5 is in the hundreds place and has a place value of 500.
The digit 6 is in the tens place and has a place value of 60.
The digit 3 is in the one's place and has a place value of 3.

7.892

Ones Place (7): The digit 7 represents 7 ones.
Tenths Place (8): The digit 8 represents 8 tenths.
Hundredths Place (9): The digit 9 represents 9 hundredths.
Thousandths Place (2): The digit 2 represents 2 thousandths.

So, in the decimal number 7.892:

The digit 7 is in the one's place and has a place value of 7.
The digit 8 is in the tenths place and has a place value of 0.8 (8 tenths).
The digit 9 is in the hundredths place and has a place value of 0.09 (9 hundredths).
The digit 2 is in the thousandths place and has a place value of 0.002 (2 thousandths).

- **Writes numbers using base-10 numerals, number names, and expanded form**

Base-10 Numerals:

The base-10 numeral representation of 3,246 is simply "3246."
Number Names:

In number names, 3,246 is "three thousand two hundred forty-six."
Expanded Form:

The expanded form breaks down the number into the sum of its place values. For 3,246:
Thousands place: 3 * 1000 = 3000
Hundreds place: 2 * 100 = 200
Tens place: 4 * 10 = 40
Ones place: 6 * 1 = 6
The sum of these is 3000 + 200 + 40 + 6, which equals 3,246. So, in expanded form, 3,246 is expressed as 3000 + 200 + 40 + 6.

- **Recognizes that a digit in one place represents ten times what it represents in the place to its right and one-tenth what it represents in the place to its left, and extends this recognition to several places to the right or left**

Let's imagine we have the number 456.789.

Place Values to the Right (Decimal Part):

- **The digit 7 is in tenth place, so it's like saying 7 "pieces" out of 10.**
- **The digit 8 is in the hundredths place, so it's like saying 8 "pieces" out of 100.**
- **The digit 9 is in the thousandths place, so it's like saying 9 "pieces" out of 1000.**

When you add these up, you get 0.789.

Powers of 10

Powers of 10 are a way to represent numbers by using the base number 10 raised to a certain exponent. This system is closely tied to our decimal number system.

1. **Positive Powers of 10:**
   - $10^0 = 1$ - Any number raised to the power of zero is always 1.
   - $10^1 = 10$ - This represents 10 raised to the power of 1, which is just 10.
   - $10^2 = 100$ - This represents 10 raised to the power of 2, which is 10 multiplied by itself, or 100.
   - $10^3 = 1000$ - This represents 10 raised to the power of 3, which is 10 multiplied by itself twice, or 1000.

   In general, 10^n means 10 multiplied by itself n times.
2. **Negative Powers of 10:**
   - $10^{-1} = \frac{1}{10}$ or 0.1 - This represents the reciprocal of 10, or 1 divided by 10.
   - $10^{-2} = \frac{1}{100}$ or 0.01 - This represents the reciprocal of 10 squared, or 1 divided by 100.
   - $10^{-3} = \frac{1}{1000}$ or 0.001 - This represents the reciprocal of 10 cubed, or 1 divided by 1000.

   In general, 10^{-n} means the reciprocal of 10^n.
3. **Examples:**
   - 5×10^2 means 5 times 100, which is 500.
   - 2×10^{-3} means 2 times $\frac{1}{1000}$, which is 0.002.

- **Rounding**

Rounding to the Nearest Whole Number:

Look at the digit to the right of the desired place value.
If that digit is 5 or greater, round up; if it's less than 5, round down.

Example:

Round 7.83 to the nearest whole number.
The digit to the right of the decimal is 8, which is 5 or greater, so we round up.
The result is 8.
Rounding to a Specific Decimal Place:

Identify the desired decimal place.
Look at the digit immediately to the right of that place.
If that digit is 5 or greater, round up; if it's less than 5, round down.

Example:

Round 4.678 to two decimal places.
Look at the digit in the hundredths place, which is 7 (greater than 5), so we round up.

The result is 4.68.

Rounding with Large Numbers:

Follow the same principles but consider place values to the left of the decimal.
Round to the nearest thousand, million, etc., depending on the context.

Example:

Round 3,276 to the nearest hundred.
The digit in the tens place is 7 (5 or greater), so we round up.
The result is 3,300.
Rounding to a Certain Significant Figure:

Count the number of significant figures (non-zero digits and zeros between them).
Round to the desired number of significant figures.

Example:

Round 0.00345 to two significant figures.
The first two non-zero digits are 3 and 4. The digit after 4 is 5, so we round up.
The result is 0.0035.

Remember, the key is to look at the digit immediately to the right of the desired place value and use it to decide whether to round up or down.

- **Identifies properties of operations (e.g., commutative, associative, distributive) and uses them to solve problems**

1. **Commutative Property:**
   - **Addition:** The order in which numbers are added does not affect the sum.
     $a + b = b + a$
   - **Multiplication:** The order in which numbers are multiplied does not affect the product.
     $a \times b = b \times a$

   Example: $2 + 3 = 3 + 2$
2. **Associative Property:**
   - **Addition:** The grouping of numbers in addition does not affect the sum.
     $(a + b) + c = a + (b + c)$
   - **Multiplication:** The grouping of numbers in multiplication does not affect the product.
     $(a \times b) \times c = a \times (b \times c)$

   Example: $(2 + 3) + 4 = 2 + (3 + 4)$
3. **Distributive Property:**
   - Multiplication distributes over addition.
     $a \times (b + c) = a \times b + a \times c$

   Example: $2 \times (3 + 4) = 2 \times 3 + 2 \times 4$

- **Represents rational numbers and sums and differences of rational numbers on a number line / Compares, classifies, and orders rational numbers**

Example: Let's represent ⅔ + ¼ on a number line.

1. **Mark $\frac{2}{3}$ on the Number Line:**
   - Divide the distance between 0 and 1 into three equal parts. Mark the point representing $\frac{2}{3}$.
   - This is where we start.
2. **Move to the Right by $\frac{1}{4}$:**
   - Since we're adding $\frac{1}{4}$, we move to the right from $\frac{2}{3}$.
   - Divide the distance between $\frac{2}{3}$ and 1 into four equal parts and move one part to the right.
3. **End Point Represents $\frac{2}{3} + \frac{1}{4}$:**
   - The point where you land is the representation of $\frac{2}{3} + \frac{1}{4}$ on the number line.

In this example, visually moving from $\frac{2}{3}$ to the right by $\frac{1}{4}$ on the number line corresponds to the sum $\frac{2}{3} + \frac{1}{4}$. The number line provides a helpful visual representation of the addition of rational numbers.

- **Mean, median, mode**

Mean:
The mean, often referred to as the average, is calculated by adding up all the values in a set and then dividing the sum by the total number of values.

Formula:
Mean =Sum of all values/Number of values

Median:
The median is the middle value in a set when the values are ordered from least to greatest. If there is an even number of values, the median is the average of the two middle values.

Mode:
The mode is the value that appears most frequently in a set. A set can have no mode, one mode, or more than one mode.

Example Set:

Let's consider the set of values: $4, 8, 2, 6, 7, 3, 8, 5, 2, 8$.

1. **Mean:**
   $\text{Mean} = \frac{4+8+2+6+7+3+8+5+2+8}{10} = \frac{53}{10} = 5.3$
2. **Median:**
   - Arrange the values in ascending order: $2, 2, 3, 4, 5, 6, 7, 8, 8, 8$.
   - Since there are 10 values, the median is the average of the 5th and 6th values: $(5 + 6)/2 = 5.5$.
3. **Mode:**
   - The mode is 8 since it appears more frequently than any other value in the set.

So, for the set $4, 8, 2, 6, 7, 3, 8, 5, 2, 8$:

- Mean: 5.3
- Median: 5.5
- Mode: 8

- **Ratios and proportions**

Ratio:
A ratio is a way of comparing two or more quantities or values. It expresses the relative size or magnitude of one quantity in comparison to another.

A proportion is an equation that states two ratios are equal. It's often used to solve problems involving ratios. In proportion, the cross-products are equal.

Example:
In your sock drawer, you have 6 pairs of red socks, 8 pairs of blue socks, and 4 pairs of green socks. If you randomly select one pair of socks, what is the probability that the socks you pull will be red?

Probability of Getting Red Socks:

1. **Total Number of Pairs of Socks (T):**
   - $T = 6\ (\text{red}) + 8\ (\text{blue}) + 4\ (\text{green}) = 18$ pairs of socks.
2. **Probability Formula:**
   - The probability (P) of pulling a pair of red socks is given by the ratio of the number of favorable outcomes (red socks) to the total number of possible outcomes (all socks).

   $$P(\text{Red}) = \frac{\text{Number of Red Socks}}{\text{Total Number of Socks}}$$
3. **Calculate Probability:**

   $$P(\text{Red}) = \frac{6}{18} = \frac{1}{3}$$

- **Identifies and uses prime and composite numbers**

Prime Numbers:
A prime number is a natural number greater than 1 that has no positive divisors other than 1 and itself. In other words, a prime number is a number that cannot be evenly divided by any other numbers except 1 and the number itself.

Examples of prime numbers:

2, 3, 5, 7, 11, 13, 17, 19, 23, …

Composite Numbers:
A composite number is a natural number greater than 1 that is not prime. In other words, a composite number has factors other than 1 and itself.

Examples of composite numbers:

4, 6, 8, 9, 10, 12, 14, 15, 16, ...
Identification:

Prime Numbers:

Prime numbers have only two distinct positive divisors: 1 and the number itself.
For example, 7 is prime because its only divisors are 1 and 7.
Composite Numbers:

Composite numbers have more than two positive divisors.
For example, 8 is composite because it can be divided evenly by 1, 2, 4, and 8.

- **Finds factors and multiples of numbers**

Factors of a Number:

Factors are the numbers that can divide a given number evenly without leaving a remainder. In other words, ifa is a factor of b, then b can be divided by
without any remainder.

How to Find Factors:

To find the factors of a number, identify the pairs of numbers that multiply together to give the original number. Start with 1 and the number itself, then consider other pairs.

For example, let's find the factors of 12:

1 x 12 = 12
2 x 6 = 12
3 x 4 = 12

So, the factors of 12 are 1, 2, 3, 4, 6, and 12.

Multiples of a Number:

Multiples are the result of multiplying a given number by another integer. In other words, if a is a multiple of b, then a can be obtained by multiplying b by some integer.

How to Find Multiples:
To find multiples of a number, keep adding the number to itself. The result is a series of numbers that are all multiples of the original number.

For example, let's find the first few multiples of 5:

5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20

So, the first few multiples of 5 are 5, 10, 15, 20, and so on.

- **Divide two quantities to find an equivalent unit rate (e.g., when a 20-ounce box of cereal costs $6.99, the unit rate is $0.3495 per ounce).**

The unit rate is a measure of a quantity or amount expressed as a ratio in which the denominator is one unit. It represents the cost, value, or rate associated with one unit of the given quantity.

Example:
Suppose you buy a 12-pack of soda for $6. To find the unit rate (cost per can), you divide the total cost by the number of cans.

Given:

Total cost of the soda pack: $6
Number of cans: 12

Unit Rate: Unit rate = Total cost/Number of cans

Unit rate = 6/12

Unit rate=0.5

Answer:

The unit rate for the soda is $0.5 per can.

- **Solve percent problems that involve discounts or sales tax.**

Discount Example:
You want to buy a toy that originally costs $20, but there's a 10% discount. What is the final price you'll pay after the discount?

Solution:

Find the amount of the discount: 10% of $20 is $2.
Subtract the discount from the original price: $20 - $2 = $18.

After a 10% discount, the final price for the toy is $18.

Sales Tax Example:
You purchase a book for $15, and there is a 5% sales tax. What is the total cost including the sales tax?

Solution:

Find the amount of sales tax: 5% of $15 is $0.75.
Add the sales tax to the original price: $15 + $0.75 = $15.75.
Conclusion:
The total cost, including a 5% sales tax, is $15.75.

- **Differentiates between algebraic expressions and equations .**

  Rule of thumb: equal sign = equation
  no equal sign is an expression

Equation examples:
3x+4x = 12
6y+4x=24
2x+x=16

Expression examples:
3a+2b-1
4a+6b-4
3a+2b+4

- **What is an independent variable and what is a dependent variable?**

Example:
A student is conducting an experiment to investigate the relationship between the time spent practicing basketball and the number of baskets made in a shooting drill. The student believes that the more time spent practicing, the more baskets will be made.

Question:
Identify the independent variable and the dependent variable in this scenario.

Independent Variable:

This is the variable that the student can manipulate or control.
In this case, it is the time spent practicing basketball.

Dependent Variable:

This is the variable that depends on the independent variable.
In this case, it is the number of baskets made in the shooting drill.

Conclusion:
In the experiment, the independent variable is the time spent practicing basketball, and the dependent variable is the number of baskets made in the shooting drill. The student wants to explore how changes in the independent variable (practice time) affect the dependent variable (number of baskets made).

- **Understand graphs, how to graph solutions, x and y coordinates, and identify the quadrants**

Identifying Quadrants:

Quadrant I (top-right): Both x and y are positive.
Quadrant II (top-left): x is negative, y is positive.
Quadrant III (bottom-left): Both x and y are negative.
Quadrant IV (bottom-right): x is positive, y is negative.

- **Identify examples of mathematical vocabulary such as terms in an expression, constant term, factor, coefficient, and leading coefficient**

1. **Term:**
   - In the expression $3x + 2y - 5$, each part ($3x$, $2y$, and -5) is a term.
2. **Constant Term:**
   - In the expression $3x + 2y - 5$, -5 is the constant term.
3. **Factor:**
   - In the expression $3x + 2y - 5$, 3, x, 2, y, and -5 are all factors.
4. **Coefficient:**
   - In the expression $3x + 2y - 5$, the coefficients are 3 for x and 2 for y.
5. **Leading Coefficient:**
   - In a polynomial like $4x^2 - 2x + 1$, the leading coefficient is 4, which is the coefficient of the term with the highest power of x.

Examples:

Consider the expression $2x^2 - 3xy + 5$:

1. **Terms:**
   - $2x^2$, $-3xy$, and 5 are terms.
2. **Constant Term:**
   - 5 is the constant term.
3. **Factors:**
   - Factors include 2, x, 3, y, and 5.
4. **Coefficients:**
   - The coefficients are 2 for x^2, -3 for xy, and 5 for the constant term.
5. **Leading Coefficient:**
   - The leading coefficient is 2 because it corresponds to the term with the highest power of x.

- **Solve an equation or inequality that has variables on both sides, that involves combining like terms, or that involves the distributive property by isolating the variable on one side of the equation or inequality**

Example:

Equation:

$3x - 2 = 2x + 5$

Solution:

1. **Combine Like Terms:**

   $3x - 2x - 2 = 5$

   Simplifying, we get $x - 2 = 5$.

2. **Isolate the Variable:**

   $x - 2 + 2 = 5 + 2$

   Simplifying, we get $x = 7$.

- **Graph inequalities on a number line**

Graphing $2x > 4$:

Steps:

1. **Identify the Variable:**
   - The variable in this case is x.
2. **Solve for x:**
   - Divide both sides of the inequality by 2 to isolate x:

     $x > 2$
3. **Draw the Number Line:**
   - Draw a horizontal line and mark it with numbers.
4. **Mark the Boundary:**
   - For $x > 2$, place an open circle on 2 because 2 is not included.
5. **Indicate the Direction:**
   - Draw an arrow to the right to show that the solution includes all values greater than 2.

- **Identify an equation that represents the relationship between the x-values and the corresponding y-values in a table**

Example:

Suppose you have the following table:

x-values	y-values
1	3
2	6
3	9

Equation:

In this case, the relationship between the x-values and y-values can be represented by the equation $y = 3x$.

Each y-value is three times the corresponding x-value. For example:

- When $x = 1, y = 3 \times 1 = 3$
- When $x = 2, y = 3 \times 2 = 6$
- When $x = 3, y = 3 \times 3 = 9$

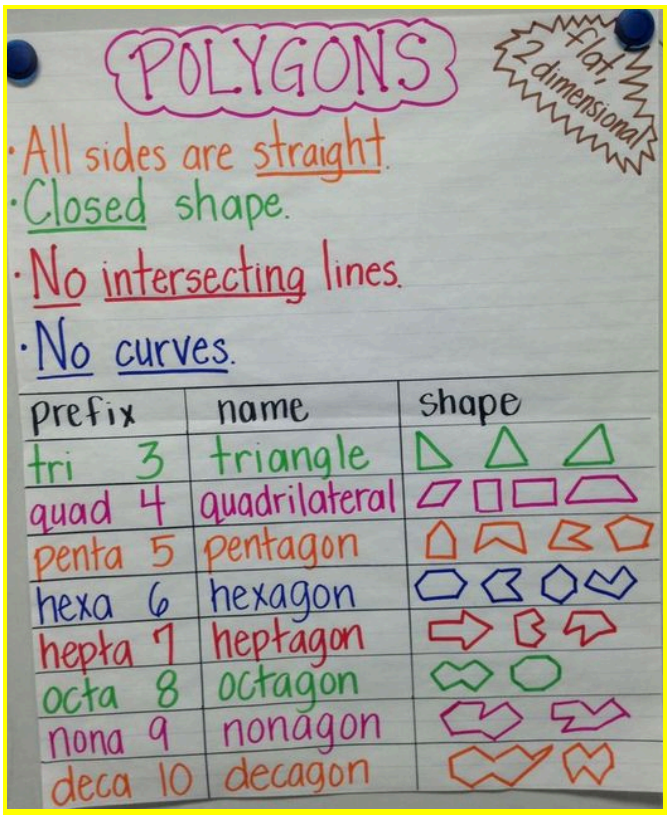
So, the equation $y = 3x$ accurately represents the relationship observed in the table.

- **Uses definitions to identify lines, rays, line segments, parallel lines, and perpendicular lines**

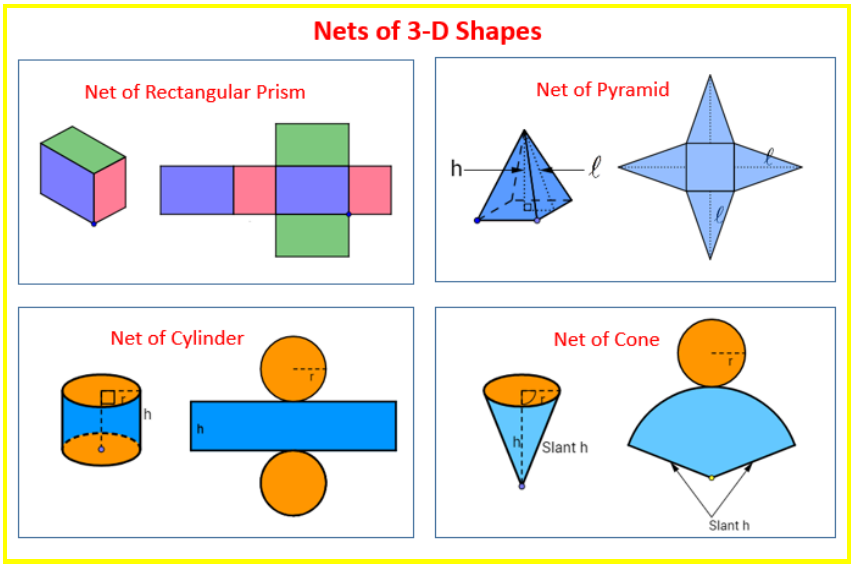
1. **Line:**
   - A line is a straight, continuous path that extends infinitely in both directions. It has no endpoints.
   - Example: $\overleftrightarrow{AB}$
2. **Ray:**
   - A ray is a part of a line that has one endpoint and extends infinitely in one direction.
   - Example: $\overrightarrow{CD}$
3. **Line Segment:**
   - A line segment is a part of a line that has two endpoints. It is the finite portion between two points on a line.
   - Example: $\overline{EF}$
4. **Parallel Lines:**
   - Parallel lines are two or more lines that, when extended indefinitely, never intersect. They have the same slope.
   - Example: $l_1 \parallel l_2$
5. **Perpendicular Lines:**
   - Perpendicular lines are two lines that intersect at a right angle (90 degrees). The slopes of perpendicular lines are negative reciprocals of each other.
   - Example: $m \perp n$

- **Different types of angles and their measurements**

- **Uses attributes to classify or draw polygons and solids**



- **Represents three-dimensional figures with nets**



- **Finds the area and perimeter of polygons, how many pair of sides, quadraderal including those with fractional side lengths**

Perimeter of a Quadrilateral:

The perimeter (P) of a polygon is the sum of the lengths of its sides. For a quadrilateral with sides a, b, c, and d:

$$P = a + b + c + d$$

Area of a Quadrilateral:

The area (A) of a quadrilateral depends on the type of quadrilateral. For a general quadrilateral, one way to find the area is by dividing it into triangles and then using the formula for the area of a triangle. For a quadrilateral with base b and height h:

$$A = \frac{1}{2} \times b \times h$$

- **Finds the volume and surface area of right rectangular prisms, including those with fractional edge lengths**

Volume of a Right Rectangular Prism:

The volume (V) of a right rectangular prism is given by the formula:

$$V = l \times w \times h$$

where:

- l is the length,
- w is the width, and
- h is the height.

Surface Area of a Right Rectangular Prism:

The surface area (SA) of a right rectangular prism is given by the formula:

$$SA = 2lw + 2lh + 2wh$$

where:

- l is the length,
- w is the width, and
- h is the height.

- **Solve problems involving measurement conversions among the following sets of units: inches, feet, and yards; millimeters, centimeters, meters, and kilometers; fluid ounces, cups, pints, quarts, and gallons; milliliters and liters; ounces, pounds, and tons; and milligrams, grams, and kilograms.**

Inches, Feet, and Yards:
Inch (in): A unit of length in the imperial system, equivalent to 1/12 of a foot.
Foot (ft): A unit of length in the imperial system, equivalent to 12 inches.
Yard (yd): A unit of length in the imperial system, equivalent to 3 feet or 36 inches.

Millimeters, Centimeters, Meters, and Kilometers:
Millimeter (mm): A unit of length in the metric system, equivalent to 0.001 meters.
Centimeter (cm): A unit of length in the metric system, equivalent to 0.01 meters.
Meter (m): The base unit of length in the metric system, equivalent to 100 centimeters.
Kilometer (km): A unit of length in the metric system, equivalent to 1000 meters.

Fluid Ounces, Cups, Pints, Quarts, and Gallons:
Fluid Ounce (fl oz): A unit of volume in both the imperial and U.S. customary systems, commonly used for measuring liquids.
Cup (cup): A unit of volume in the U.S. customary system, equivalent to 8 fluid ounces.
Pint (pt): A unit of volume in both the imperial and U.S. customary systems, equivalent to 2 cups or 16 fluid ounces.
Quart (qt): A unit of volume in both the imperial and U.S. customary systems, equivalent to 4 cups or 32 fluid ounces.
Gallon (gal): A unit of volume in both the imperial and U.S. customary systems,
equivalent to 4 quarts or 128 fluid ounces.

Milliliters and Liters:
Milliliter (ml): A unit of volume in the metric system, equivalent to 0.001 liters.
Liter (L): The base unit of volume in the metric system, equivalent to 1000 milliliters.

Ounces, Pounds, and Tons:
Ounce (oz): A unit of mass in both the imperial and U.S. customary systems.
Pound (lb): A unit of mass in both the imperial and U.S. customary systems, equivalent to 16 ounces.
Ton (ton): A unit of mass in both the imperial and U.S. customary systems, equivalent to 2000 pounds.

Milligrams, Grams, and Kilograms:
Milligram (mg): A unit of mass in the metric system, equivalent to 0.001 grams.
Gram (g): The base unit of mass in the metric system, equivalent to 1000 milligrams.
Kilogram (kg): A unit of mass in the metric system, equivalent to 1000 grams.

- **Describe relationships shown by data on a scatter plot (e.g., positive or negative, linear or nonlinear).**

A scatterplot is a graphical representation of data points in a two-dimensional coordinate system. It helps visualize relationships between two variables. Here are descriptions of relationships shown by data on a scatter plot:

Positive Relationship:
In a positive relationship, as one variable increases, the other variable also increases.
On a scatter plot, data points tend to cluster in a pattern that slopes upward from left to right.

Negative Relationship:
In a negative relationship, as one variable increases, the other variable decreases.
On a scatter plot, data points tend to cluster in a pattern that slopes downward from left to right.

Linear Relationship:
In a linear relationship, the relationship between the two variables can be well represented by a straight line.

On a scatter plot, data points form a pattern that closely follows a straight line.

Nonlinear Relationship:
In a nonlinear relationship, the relationship between the two variables cannot be well represented by a straight line. On a scatter plot, data points form a pattern that curves or bends, indicating a more complex relationship.

Social Studies 7004

- **Weaknesses in the Articles of Confederation:**

The Articles of Confederation had several weaknesses, including:

1) Lack of Central Authority: The central government lacked the power to tax, regulate commerce, or enforce its laws.

2) No Executive Branch: There was no executive branch to enforce laws or coordinate government actions.

3) No National Currency: Each state had its own currency, leading to economic chaos.

4) Inability to Raise an Army: The central government couldn't raise an army, making defense and security challenging.

5) No Judiciary System: There was no federal court system to interpret and enforce laws.

Why Were the Articles Written in this Way:
The Articles were written in a way that limited the power of the central government due to fears of recreating a strong, centralized authority like the one they had experienced under British rule. The framers were cautious about concentrating too much power in one entity, leading to a weak central government structure.

Manifest Destiny and U.S. Territorial Expansion:
Manifest Destiny was the belief in the 19th century that it was America's destiny to expand its territory from the Atlantic to the Pacific. This ideology influenced westward expansion, leading to the acquisition of territories such as Texas, Oregon, and California, often through annexation, negotiation, or conflict.

Purpose of the System of Checks and Balances:
The system of checks and balances in the United States government is designed to prevent any one branch (executive, legislative, or judicial) from gaining too much power. Each branch has the ability to limit the actions of the other branches, ensuring a balance of power and preventing tyranny.

Impact of the U.S. Constitution on Federalism:
The U.S. Constitution, through provisions like the 10th Amendment and the Commerce Clause, defines the relationship between the federal government and states. The 10th Amendment reserves powers not delegated to the federal government to the states, while the Commerce Clause grants Congress the authority to regulate interstate commerce, impacting the distribution of powers.

Understanding Amendments 1-27:

The Amendments 1-27 include the Bill of Rights (1-10) and subsequent amendments addressing various issues such as women's suffrage (19th Amendment), prohibition (18th and 21st Amendments), and term limits for the presidency (22nd Amendment).

Amendments 1-10: The Bill of Rights

First Amendment: Freedom of Religion, Speech, Press, Assembly, and Petition
Guarantees freedom of religion, speech, the press, the right to assemble peacefully, and the right to petition the government for a redress of grievances.

Second Amendment: Right to Bear Arms
Protects the right of the people to keep and bear arms.

Third Amendment: Quartering of Troops
Prohibits the quartering of soldiers in private homes during peacetime without the owner's consent.

Fourth Amendment: Protection from Unreasonable Searches and Seizures
Protects against unreasonable searches and seizures, requiring probable cause and warrants based on probable cause.

Fifth Amendment: Rights of the Accused
Protects the rights of the accused, including the right to due process, protection against self-incrimination, and protection against double jeopardy.

Sixth Amendment: Right to a Fair Trial
Guarantees the right to a speedy and public trial, the right to confront witnesses, and the right to counsel.

Seventh Amendment: Right to Trial by Jury in Civil Cases
Preserves the right to trial by jury in civil cases.

Eighth Amendment: Protection from Cruel and Unusual Punishment
Prohibits cruel and unusual punishment, as well as excessive bail or fines.

Ninth Amendment: Protection of Rights Not Enumerated in the Constitution
Asserts that the enumeration of certain rights in the Constitution does not deny or disparage other rights retained by the people.

Tenth Amendment: Powers Reserved to the States
States that powers not delegated to the federal government nor prohibited to the states are reserved to the states or the people.

Amendments 11-27:

Eleventh Amendment: Limitation on Lawsuits Against States
Limits the ability of individuals to sue states in federal court.

Twelfth Amendment: Election of the President and Vice President
Provides a procedure for electing the president and vice president through the Electoral College.

Thirteenth Amendment: Abolition of Slavery
Abolishes slavery and involuntary servitude, except as punishment for a crime.

Fourteenth Amendment: Equal Protection Under the Law
Guarantees equal protection of the laws and due process to all citizens, overturning the Dred Scott decision and addressing citizenship.

Fifteenth Amendment: Right to Vote Regardless of Race
Prohibits the denial of the right to vote based on race, color, or previous condition of servitude.

Sixteenth Amendment: Federal Income Tax
Grants Congress the power to levy an income tax.

Seventeenth Amendment: Direct Election of Senators
Provides for the direct election of U.S. senators by the people.

Eighteenth Amendment: Prohibition of Alcohol
Prohibited the manufacture, sale, and transportation of alcoholic beverages.

Nineteenth Amendment: Women's Suffrage
Grants women the right to vote.

Twentieth Amendment: Terms of the President and Congress
Establishes the beginning and ending dates for the terms of the president and Congress.

Twenty-First Amendment: Repeal of Prohibition
Repealed the Eighteenth Amendment, ending the prohibition of alcoholic beverages.

Twenty-Second Amendment: Presidential Term Limits
Limits the president to two terms in office.

Twenty-Third Amendment: Right to Vote in D.C.
Grants residents of Washington, D.C., the right to vote in presidential elections.

Twenty-Fourth Amendment: Abolition of Poll Taxes
Prohibits the use of poll taxes in federal elections.

Twenty-Fifth Amendment: Presidential Succession and Disability
Provides procedures for presidential succession and the vice president's assumption of the presidency in case of presidential disability.

Twenty-Sixth Amendment: Right to Vote at Age 18
Lowers the voting age to 18.

Twenty-Seventh Amendment: Congressional Pay
Prohibits changes to congressional salaries from taking effect until the next term begins.

Major Contributions of Classical Civilizations:
Classical civilizations, including Egypt, Greece, and Rome, made significant contributions to art, architecture, philosophy, science, and governance. For example, ancient Greece introduced democracy, while Rome contributed to law and engineering.

Key Terms and Concepts of Economics:
Key economic terms include supply and demand, scarcity and choice, money and resources. Understanding these concepts helps analyze how societies allocate resources and make decisions about production and consumption.

Citizenship and Democracy in Ancient Greece vs. Contemporary U.S.:
In ancient Greece, citizenship was typically limited to free male residents, while the U.S. today grants citizenship to a more diverse population. Both systems involve citizen participation in decision-making, but contemporary U.S. democracy is representative and extends beyond a city-state model.

Global Culture Emergence in the 20th Century:
A global culture emerged due to advancements in communication, technology, and transportation. Consequences include increased cultural exchange, international collaboration, and the spread of ideas, but it also raises concerns about cultural homogenization and loss of cultural diversity.

Industrialization and Types of Farming (Terrace):
Industrialization refers to the shift from agrarian economies to industrial ones. Terrace farming is a method of farming on sloped terrains, often used to conserve soil and water in hilly or mountainous regions.

Ancient Civilizations (Aztec, Maya):
The Aztec and Maya were Mesoamerican civilizations with achievements in art, architecture, mathematics, and astronomy. The Aztec Empire was known for its military prowess, while the Maya excelled in hieroglyphic writing and calendar systems.

Consumer and Producer:
A consumer is an individual or entity that uses goods and services, while a producer is an individual or entity that creates or supplies goods and services for consumption.

American Revolution, Cold War, WWI, WW2:
- American Revolution (1775-1783): Started due to grievances against British rule, leading to the Thirteen Colonies seeking independence. Effects include the formation of the United States.
- Cold War (1947-1991): A geopolitical tension between the U.S. and the Soviet Union, starting after WWII. Effects include the division of Europe and the arms race.
- WWI (1914-1918): Started due to complex alliances and nationalism. Effects include significant changes to global political boundaries and the League of Nations.
- WWII (1939-1945): Started due to aggressive expansionist policies. Effects include the United Nations and the beginning of the Cold War.

Emancipation Proclamation:

The Emancipation Proclamation was a significant executive order issued by President Abraham Lincoln during the American Civil War. It was announced on September 22, 1862, and it took effect on January 1, 1863. The primary purpose of the Emancipation Proclamation was to declare the freedom of all enslaved individuals in the Confederate states.

Powers of Congress:

The powers of the United States Congress are outlined in Article I of the U.S. Constitution. Congress, as the legislative branch of the federal government, holds significant authority and responsibilities. The powers granted to Congress are divided into several categories:

Enumerated Powers (Expressed Powers):
These are powers explicitly granted to Congress by the Constitution. They include:
The power to lay and collect taxes.
The power to borrow money on the credit of the United States.
The power to regulate commerce with foreign nations and among the states.
The power to coin money and regulate its value.
The power to declare war.

The power to raise and support armies and provide for a navy.
The power to establish post offices and post roads.

Implied Powers:
Congress is granted the authority to make all laws necessary and proper for carrying into execution its enumerated powers. This clause, known as the Necessary and Proper Clause (Article I, Section 8, Clause 18), allows Congress to enact laws that may not be explicitly mentioned but are essential to carrying out its constitutional duties.

Inherent Powers:
Inherent powers are those that Congress possesses as a result of being a sovereign government. They are not explicitly stated in the Constitution but are considered necessary for the functioning of a government. Examples include the power to control borders and regulate immigration.

Non-Legislative Powers:
Congress also has certain powers that are not directly related to lawmaking. These include:
The power to impeach and remove federal officials, including the President.
The power to confirm presidential appointments, including judges and members of the Cabinet. The power to ratify treaties negotiated by the President (requires a two-thirds majority in the Senate).

Power of the Purse:
Congress holds significant control over the nation's finances. It has the exclusive power to initiate revenue bills (bills related to taxes and government spending), and it can control appropriations and spending through the annual budget process.

Investigative Powers:
Congress has the authority to conduct investigations and oversight of the executive branch, ensuring accountability and transparency. This power is often exercised through committees and hearings.

Power to Regulate Interstate Commerce:
The Commerce Clause grants Congress the authority to regulate commerce among the states, which includes a wide range of economic activities.

Power to Define and Punish Offenses Against International Law:
Congress has the authority to define and punish offenses against the law of nations, including piracy.

Economics:

Opportunity Cost:
Opportunity cost refers to the value of the next best alternative for when a decision is made to allocate resources to a particular option.

Perpetual Growth:
Continuous and unending increase in a quantity or value over time.

Fixed Cost:
Costs that do not vary with the level of production or output.

Market Price:
The current price at which a good or service can be bought or sold in the open market.

Market Structures:

Monopoly:
Single sellers dominate the market with no close substitutes.

Oligopoly:
Few large firms dominate the industry, influencing prices.

Monopolistic Competition:
Many sellers offer differentiated products, allowing some pricing control.

Perfect Competition:
Many buyers and sellers dealing with identical products, no individual pricing control.

Geographic Concepts:

Longitude:
Definition: Longitude is a measure of how far east or west a location is from the Prime Meridian. It is expressed in degrees, minutes, and seconds, and it ranges from 0° to 180° east and 0° to 180° west. The Prime Meridian itself has a longitude of 0°.

Latitude:
Definition: Latitude is a measure of how far north or south a location is from the Equator. It is expressed in degrees, minutes, and seconds, and it ranges from 0° at the Equator to 90° north and 90° south at the poles.

Equator:
Definition: The Equator is an imaginary line that circles the Earth horizontally, dividing it into the Northern Hemisphere and the Southern Hemisphere. It is located equidistant from the North and South Poles and has a latitude of 0°. Locations along the Equator experience relatively consistent day length throughout the year.

Prime Meridian:
Definition: The Prime Meridian is an imaginary line that runs from the North Pole to the South Pole, passing through Greenwich, London, England. It serves as the reference point for measuring longitude and has a longitude of 0°. Locations to the east of the Prime Meridian have positive longitudes, while those to the west have negative longitudes.

North American Colonies and Their Differences (13 Colonies):
The Thirteen Colonies were British colonies in North America with different economies and cultures. The New England colonies focused on trade and shipbuilding, the Middle colonies on agriculture and trade, and the Southern colonies on agriculture, especially plantation farming.

U.S. 20th Century Policies:
U.S. 20th-century policies include Progressive Era reforms, New Deal policies addressing the Great Depression, Cold War containment, Civil Rights Acts promoting desegregation, and various economic and foreign policies.

Great Depression:
The Great Depression (1929-1939) was a severe worldwide economic downturn marked by unemployment, poverty, and a decline in industrial production. It led to significant policy changes, including the New Deal.

Major Laws: New Deal, Civil Rights Acts:

- New Deal: A set of policies implemented by President Franklin D. Roosevelt during the Great Depression to address economic challenges and provide relief, recovery, and reform.
- Civil Rights Acts: Legislation aimed at ending racial segregation and discrimination, including the Civil Rights Act of 1964 and the Voting Rights Act of 1965.

Regions of the U.S.:
The U.S. is commonly divided into regions based on geography, culture, and economic characteristics, including the Northeast, Midwest, South, and West.

Human Impact on the Environment:
Human activities, such as industrialization, deforestation, and pollution, have significant impacts on the environment, including climate change, loss of biodiversity, and habitat destruction.

Natural Resources:
Natural resources are materials or substances found in the environment that are used by humans for various purposes. Examples include water, air, minerals, and forests.

Spanish-American War:
The Spanish-American War (1898) was a conflict between the U.S. and Spain over Cuba's fight for independence. It resulted in U.S. acquisition of territories, including Puerto Rico, Guam, and the Philippines.

Supply and Demand

Supply:

Definition: Supply refers to the quantity of a good or service that producers are willing and able to offer for sale in a market at various prices during a specific period.

Factors Affecting Supply:
Production costs.
Technological advancements.
Government regulations.
Number of producers in the market.

Law of Supply: Generally, there is a direct relationship between the price of a good and the quantity supplied. As the price increases, the quantity supplied tends to increase, and vice versa, assuming other factors remain constant.

Demand:

Definition: Demand represents the quantity of a good or service that consumers are willing and able to buy in a market at various prices during a specific period.

Factors Affecting Demand:
Consumer preferences.
Income levels.
Price of related goods (substitutes and complements).
Population and demographic factors.

Law of Demand: Generally, there is an inverse relationship between the price of a good and the quantity demanded. As the price increases, the quantity demanded tends to decrease, and vice versa, assuming other factors remain constant.

How does a bill become law?:

The process of how a bill becomes law in the United States involves several steps, outlined below. It's important to note that this process can vary slightly between the House of Representatives and the Senate, but the overall framework remains the same:

Introduction of a Bill:
The process begins when a member of Congress introduces a bill. Bills can be introduced in either the House of Representatives or the Senate.

Committee Review:
The bill is assigned to a relevant committee for review. Committees are specialized groups that focus on specific policy areas (e.g., finance, health, foreign affairs). Committees can hold hearings, gather expert testimony, and amend the bill.

Subcommittee Review (Optional):
Some bills may go through additional review in subcommittees, which are smaller groups within the main committee.

Committee Markup:
The committee reviews and debates the bill's content, making amendments if necessary. The committee then votes on whether to send the bill to the full chamber.

Floor Consideration:
If the committee approves the bill, it goes to the full chamber (House or Senate) for debate and voting. Members of the chamber can propose amendments during this stage.

Debate and Vote:
The bill is debated on the floor, and members have the opportunity to express their views. After debate, the bill goes to a vote. If a majority of the chamber's members vote in favor, the bill passes.

Conference Committee (If Applicable):
If the House and Senate pass different versions of the same bill, a conference committee may be appointed to reconcile the differences and create a unified version.

Final Approval:
Both chambers must agree on the final version of the bill. If they do, the bill goes to the President.

Presidential Action (FINAL ACTION): The President can either sign the bill into law or veto it. If the President vetoes the bill, it can still become law if Congress overrides the veto with a two-thirds majority vote in both the House and the Senate.

The 13 Colonies:

Virginia (1607):
Characteristics: Jamestown, the first permanent English settlement, was established in Virginia. It was known for cash crops like tobacco and a significant reliance on indentured and later enslaved labor

Massachusetts (1620):
Characteristics: The Pilgrims, seeking religious freedom, established Plymouth in 1620. The Massachusetts Bay Colony, established by Puritans in 1630, had a strong influence on the region.

New Hampshire (1623):
Characteristics: Originally part of Massachusetts, New Hampshire became a separate colony known for its timber and shipbuilding industry.

Maryland (1634):
Characteristics: Maryland was established as a haven for English Catholics. It became known for tobacco cultivation and, notably, the Act of Toleration in 1649, granting religious freedom to all Christians.

Connecticut (1636):
Characteristics: Founded by Puritans who left Massachusetts, Connecticut developed a democratic government known as the Fundamental Orders, often considered a precursor to written constitutions.

Rhode Island (1636):
Characteristics: Founded by Roger Williams as a haven for religious dissidents, Rhode Island became known for its commitment to religious freedom and separation of church and state.

Delaware (1638):
Characteristics: Originally part of New Sweden, Delaware was later settled by the Dutch and then the English. It was known for trade and agriculture.

North Carolina (1653):
Characteristics: Settled by Virginians seeking more land, North Carolina developed an economy based on tobacco and later rice and indigo.

South Carolina (1670):
Characteristics: Originally part of Carolina, South Carolina's economy thrived on rice and indigo plantations, and it had a significant enslaved population.

New York (1664):
Characteristics: Originally New Amsterdam, the Dutch colony, it was captured by the English and renamed New York. It became a significant trading and commercial center.

New Jersey (1664):
Characteristics: Originally part of New Netherland, it became a proprietary colony known for agriculture and trade.

Pennsylvania (1681):
Characteristics: Founded by William Penn as a Quaker colony, Pennsylvania was known for religious tolerance, a representative government, and economic diversity.

Georgia (1732):
Characteristics: Founded by James Oglethorpe as a haven for debtors and a buffer against Spanish Florida, Georgia later became known for rice and indigo cultivation.

Recession:

A recession is a more common and less severe economic downturn than a depression. Several factors can contribute to the onset of a recession the biggest factors of recession is:

Decreased Consumer Spending

A significant drop in consumer confidence or an increase in personal debt can lead to reduced spending, affecting businesses and economic growth.

Science 7005

Understanding Layers of the Earth:
The Earth is composed of three main layers: the crust, mantle, and core. The crust is the outermost layer, followed by the mantle, which is partially molten and responsible for tectonic plate movement. The core is divided into a liquid outer core and a solid inner core.

Understanding Earth's Atmosphere & Elements in the Atmosphere:
Earth's atmosphere is primarily composed of nitrogen (78%) and oxygen (21%). Trace gasses include argon, carbon dioxide, and water vapor. The atmosphere is divided into several layers: troposphere, stratosphere, mesosphere, thermosphere, and exosphere.

Different Types of Rocks: Sedimentary, Igneous, Metamorphic:
Sedimentary rocks form from the accumulation of sediment. Igneous rocks result from the solidification of molten magma or lava. Metamorphic rocks are formed through the alteration of existing rocks due to heat and pressure.

Weathering and Erosion:
Weathering is the breakdown of rocks into smaller particles due to physical, chemical, or biological processes. Erosion involves the transportation of these particles by natural agents like wind, water, or ice.

Understands Earth and the Universe: Eclipse, Earth Rotations:
An eclipse occurs when one celestial body passes into the shadow of another. Earth's rotation causes day and night, and its orbit around the Sun results in seasons. The relationship between the Earth, Sun, and Moon influences phenomena like solar and lunar eclipses.

Understands Earth Patterns, Cycles, and Change:
Earth exhibits various patterns and cycles, including day and night, seasons, and the water cycle. Changes occur over time due to natural processes, human activities, and external influences.

What Is the Inside of Earth Like?:
The Earth's interior is composed of a solid inner core, a liquid outer core, a semi-fluid mantle, and a solid crust. The movement of molten material in the outer core generates the Earth's magnetic field.

What Is the Difference Between Rocks and Minerals?:
Rocks are composed of minerals. Minerals are naturally occurring, inorganic substances with a specific chemical composition and crystal structure.

What Are Fossils, and How Are They Formed?:
Fossils are the preserved remains or traces of ancient organisms. They form through processes like mineralization, cast and mold formation, and preservation in amber or tar.

What Is the "Ring of Fire"?:
The "Ring of Fire" is a region in the Pacific Ocean basin known for its high volcanic and seismic activity. It is characterized by numerous earthquakes and volcanic eruptions.

What Causes Earthquakes?:
Earthquakes are caused by the sudden release of energy along faults in the Earth's crust. This release of energy generates seismic waves.

What Causes a Volcano to Erupt?:
Volcanic eruptions occur when magma rises to the surface, leading to the release of gasses, ash, and lava. Pressure buildup and the composition of magma influence eruption styles.

The Greatest Difference in Water Level Between a Low Tide and a High Tide Occurs Because of What Alignment of the Moon, Sun, and Earth?:
The greatest difference between high tide and low tide occurs during a spring tide when the Sun, Earth, and Moon are aligned in a straight line.

What Causes the Seasons on Earth?:
Earth's axial tilt and its orbit around the Sun cause variations in sunlight intensity, leading to the changing seasons.

Understands Change Over Time in Living Things: Punnett Squares:
Punnett squares are used to predict the genetic outcomes of crosses between individuals with known genotypes. They help understand how traits are inherited.

Periodic Tables:
The periodic table is a tabular arrangement of chemical elements, organized based on their atomic number and chemical properties.

Protons, Neutrons, Electrons:

Protons and neutrons are located in the nucleus of an atom, while electrons orbit the nucleus in electron shells.

Understands Regulation and Behavior:
Living organisms regulate internal processes and exhibit behaviors in response to external stimuli. This includes life cycles, responses to environmental changes, and maintaining internal balance (homeostasis).

Knows About Personal Health:
Personal health knowledge includes understanding nutrition, preventing communicable diseases, and avoiding substance abuse.

Why Are Roots, Stems, and Leaves Important to Plants? What Are Their Functions?:
Roots anchor plants and absorb water and nutrients. Stems provide support and transport substances. Leaves perform photosynthesis, converting sunlight into energy.

What Is the Function of Chlorophyll?:
Chlorophyll is a pigment in plant cells that captures sunlight during photosynthesis, allowing plants to convert light energy into chemical energy.

Explain the Process of Photosynthesis:
Photosynthesis is the process by which plants convert light energy, carbon dioxide, and water into glucose and oxygen using chlorophyll.

How Does the Human Circulatory System Work?:
The circulatory system transports blood, oxygen, and nutrients throughout the body. The heart pumps blood, and blood vessels carry it to various organs and tissues.

How Does the Human Digestive System Work?:
The digestive system breaks down food into nutrients that can be absorbed by the body. It involves processes such as ingestion, digestion, absorption, and elimination.

What Are Dominant and Recessive Traits?:
Dominant traits mask the expression of recessive traits in individuals with heterozygous genotypes. Recessive traits are only expressed in individuals with homozygous recessive genotypes.

How Does the Human Body Maintain a Constant Temperature?:
The human body maintains a constant temperature through processes such as sweating, shivering, and regulating blood flow.

Understands the Physical and Chemical Properties and Structure of Matter:
Matter has various physical and chemical properties. It undergoes changes of states, and mixtures and solutions exhibit specific characteristics.

Sometimes When Two Chemicals Are Combined, a Chemical Reaction Takes Place:
Chemical reactions involve the rearrangement of atoms, resulting in the formation of new substances with different properties.

Law of Conservation of Mass: The total mass of the reactants must equal the total mass of the products. This principle is known as the law of conservation of mass, and it means that atoms are neither created nor destroyed during a chemical reaction. The atoms are simply rearranged.

Where Are the Protons Located in an Atom?:
Protons are located in the nucleus of an atom, along with neutrons.

How Long Does It Take for a Car Traveling 30 Miles Per Hour to Go 3 Miles?:
To calculate the time it takes, divide the distance by the speed (time = distance/speed).

Kinetic Energy & Potential Energy:
Kinetic energy is the energy of motion, while potential energy is stored energy based on position or state.

How Is the Energy of a Rock Sitting on the Top of a Hill Different From the Energy of a Rock Sitting at the Bottom of the Same Hill?:
The rock at the top of the hill has potential energy due to its position, which can be converted to kinetic energy as it rolls down.

What Is the Difference Between Weight and Mass?:
Weight is the force of gravity acting on an object, while mass is the amount of matter in an object and remains constant regardless of location.

How Do Visible Light Waves Differ From Sound Waves and Water Waves?:
Visible light waves are electromagnetic waves, while sound waves and water waves are mechanical waves that require a medium (air or water) for propagation.

What About the Properties of Light Makes a Red Apple Appear Red?:
The color of an object is determined by the wavelengths of light it reflects. A red apple appears red because it reflects red wavelengths and absorbs other colors.

Is Light That Interacts With a Mirror Reflected or Refracted?:

Light that interacts with a mirror is reflected, bouncing off the surface of the mirror. Refraction occurs when light passes through a transparent medium and changes direction.

Phases of the Moon:

The phases of the moon are determined by the relative positions of the Earth, Moon, and Sun. As the Moon orbits the Earth, different portions of its illuminated half become visible from Earth. The phases include:

New Moon:
Position of Earth: The Earth, Moon, and Sun are aligned, with the Moon between the Earth and the Sun. The side of the Moon facing the Earth is not illuminated.

Waxing Crescent:
Position of Earth: The Moon moves slightly in its orbit, and a small crescent of the illuminated side becomes visible from Earth.

First Quarter (Waxing Quarter):
Position of Earth: The Moon is at a 90-degree angle to the Earth and the Sun. Half of the illuminated side is visible from Earth.

Waxing Gibbous:
Position of Earth: More than half but not fully illuminated. It follows the first quarter and precedes the full moon.

Full Moon:
Position of Earth: The Earth is between the Moon and the Sun, with the fully illuminated side of the Moon facing the Earth.

Waning Gibbous:
Position of Earth: The illuminated portion of the Moon starts to decrease after the full moon.

Last Quarter (Waning Quarter):
Position of Earth: Similar to the first quarter, with half of the illuminated side visible. The Moon is at a 90-degree angle to the Earth and the Sun.

Waning Crescent:
Position of Earth: A small crescent of the illuminated side is visible. It precedes the new moon.

Earth's Rotation:

Earth's Rotation and Day:
Earth's rotation is the spinning of the planet around its axis. The Earth completes one full rotation approximately every 24 hours. This rotation is responsible for the cycle of day and night. As the Earth rotates, different parts of its surface are exposed to sunlight, creating day in the illuminated region and night in the shadowed region.

Earth's Orbit and Year:
Earth's orbit is the path it follows as it revolves around the Sun. The Earth completes one orbit around the Sun, defining a year, approximately every 365.25 days. The tilt of the Earth's axis and its orbit contribute to the changing seasons. As Earth orbits the Sun, different hemispheres receive varying amounts of sunlight, leading to the seasonal cycle.

Human Body System:

Circulatory System:

Function: Circulates blood throughout the body, transporting oxygen, nutrients, hormones, and waste products.
Key Organs: Heart, blood vessels (arteries, veins, capillaries), blood.

Respiratory System:
Function: Facilitates the exchange of oxygen and carbon dioxide between the body and the environment.
Key Organs: Lungs, trachea, bronchi, diaphragm.

Nervous System:
Function: Controls and coordinates body activities through electrical impulses and chemical signals.
Key Organs: Brain, spinal cord, nerves.

Muscular System:
Function: Enables movement, supports posture, and generates heat.
Key Organs: Muscles, tendons.

Skeletal System:
Function: Provides structural support, protects organs, and serves as a site for blood cell production.
Key Organs: Bones, joints.

Digestive System:
Function: Breaks down food into nutrients, absorbs nutrients, and eliminates waste.
Key Organs: Stomach, small intestine, large intestine, liver, pancreas.

Endocrine System:
Function: Regulates bodily functions using hormones produced by glands.
Key Organs: Glands (e.g., thyroid, adrenal glands), hormones.

Excretory System (Urinary System):
Function: Filters and eliminates waste products from the blood, regulates fluid balance.
Key Organs: Kidneys, bladder, ureters, urethra.

Reproductive System:
Function: Responsible for reproduction and the continuation of the species.
Key Organs: Male - testes, penis; Female - ovaries, uterus, vagina.

Solar Eclipse:
A solar eclipse occurs when the Moon passes between the Earth and the Sun, blocking part or all of the Sun's light. This alignment causes a temporary shadow to be cast on Earth.