

CHAPTER 8 SOLUTIONS ACIDS BASES

SECTION 82 ANSWERS

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Why does crushing a solute increase the rate of solution? Flexi Says: Crushing a solute increases its surface area, which allows more particles to come into contact with the solvent at once. This increases the rate at which the solute particles can interact with the solvent particles, thereby speeding up the dissolution process.

What are acids and bases answers? An acid is any hydrogen-containing substance that is capable of donating a proton (hydrogen ion) to another substance. A base is a molecule or ion able to accept a hydrogen ion from an acid. Acidic substances are usually identified by their sour taste.

What contains as much solute as the solvent can hold? When a solution contains the maximum amount of solute that can dissolve under a given set of conditions, it is a saturated solution.

How the concentration of an acid differs from the strength of an acid? Strength and concentration of acids are independent concepts. Strength describes the percentage of acid molecules that ionise whilst concentration describes the number of acid molecules (ionised and unionised) per volume of solvent.

Why does sugar dissolve faster than salt? Also, the size of the sugar molecule is greater than that of the salt molecule. Thus a single sugar molecule can attract more water molecules than the table salt leading to its faster dissolution in water.

Why do tablets dissolve faster in hot water? Adding energy (heating) increases molecular motion. Increased molecular motion competes with the attraction between solute molecules and tends to make them come apart more easily.

What is the pH of water? The pH of pure water (H_2O) is 7 at 25 °C, but when exposed to the carbon dioxide in the atmosphere this equilibrium results in a pH of approximately 5.2 because CO_2 in the air dissolves in the water and forms carbonic acid.

Is water an acid or base? Pure water is neither acidic or basic; it is neutral.

Which pH is acidic? The pH scale measures how acidic or alkaline a substance is. The scale ranges from 0 to 14. A pH of 7 is neutral. A pH less than 7 is acidic, and a pH greater than 7 is basic.

What factors affect how fast a substance dissolves? There are three factors that affect the rate of dissolution: (1) the surface area of the solute, (2) the temperature of the solvent, and (3) the amount of agitation that occurs when the solute and the solvent are mixed.

Can a solvent dissolve all solutes? Although a solvent is generally thought of as being liquid, a solvent can be either solid, liquid, or gas. Liquid solvents, however, tend to be the most useful. Solvents are not universal, meaning simply that there is no one solvent that dissolves all possible solutes.

Which affects solubility? Solubility is affected by 4 factors – temperature, pressure, polarity, and molecular size. Solubility increases with temperature for most solids dissolved in liquid water. This is because higher temperatures increase the vibration or kinetic energy of the solute molecules.

Do acid-base neutralization reactions absorb heat or release heat? The heat (Q) given off by the neutralization reaction is absorbed by the reaction solution and the calorimeter. Both the solution and calorimeter increase in temperature due to the absorbed heat and this increase can be measured with a thermometer.

Do strong acids dissociate in water? The strength of an acid or base is determined by its ability to dissociate in water. An acid that completely dissociates to form its component ions H^+ and A^- when placed in water is a strong acid. The same can be said for a base that completely dissociates into B^+ and OH^- .

What are strong bases in water? Strong bases almost %100 dissociate into ions when dissolved in water. For example, NaOH is a strong base, and it dissociates almost 100% into ions in water. One arrow is used for the dissolution of strong bases to indicate that the reaction is almost complete.

Why does crushing something make it dissolve faster? A given quantity of solute dissolves faster when it is ground into small particles, rather than in the form of large pieces, because more surface area is exposed. A packet of granulated sugar exposes far more surface area to the solvent and dissolves more quickly than a sugar cube.

How does crushing affect solubility? Crushing it has increased the surface area so it speeds up the dissolving process but doesn't change maximum solubility.

Why does crushing a solid increase the speed at which the solid dissolves? Crushing the solid increases the amount of surface area of the solid that is exposed to the solvent, which will cause it to dissolve faster. Also, stirring the solid-solvent mixture will cause the solid to dissolve faster. Crushing and stirring will speed up the process even more.

Does grinding the solute increase the rate of dissolving? Grinding solid crystals increases the rate of dissolving for a solid solute in water because it increases the surface area on the crystals. When molecules dissolve in water it is because water is able to form hydrogen bonds with the molecules through the partial charges on the oxygen and hydrogen atoms.

The House of the Spirits: A Literary Journey

What is "The House of the Spirits"?

"The House of the Spirits" is a magical realism novel by Isabel Allende, first published in 1982. Set against the tumultuous backdrop of 20th-century Chile, the novel follows the lives of the Trueba family over several generations. It explores themes of family, love, social injustice, and the supernatural.

What sets "The House of the Spirits" apart as a magical realism novel?

Magical realism is a literary genre that blends the real and the magical, blurring the lines between fantasy and reality. In "The House of the Spirits," the supernatural is an integral part of the narrative, with ghosts, clairvoyance, and telepathy playing significant roles. These magical elements enhance the characters' experiences and serve as metaphors for the social and political upheavals of the time.

Who are the main characters in "The House of the Spirits"?

The Trueba family are the central characters in the novel. Esteban Trueba is the patriarch, a wealthy landowner who descends into madness and tyranny. Clara del Valle, his wife, is a gentle and clairvoyant spirit who guides the family through times of turmoil. Their daughters, Blanca and Alba, are strong-willed women who challenge the patriarchal society.

What is the political and social context of the novel?

"The House of the Spirits" is set against a period of significant political and social changes in Chile. The rise of socialism, the Pinochet dictatorship, and the struggle for women's rights are all woven into the narrative. The novel examines the consequences of power, violence, and oppression on both personal and societal levels.

What is the legacy of "The House of the Spirits"?

"The House of the Spirits" has become an international literary classic, translated into over 30 languages. It has won numerous awards and been adapted into a film, a stage play, and an opera. The novel's exploration of family, identity, and the human spirit continues to resonate with readers around the world.

What are some questions for The Hobbit book?

What is the main lesson in The Hobbit? The most prominent theme in The Hobbit is bravery, and the transformation of Bilbo Baggins from a timid homebody living quietly in his hobbit hole in the Shire to the brave hero at the center of a dangerous adventure. It was an act of bravery for Bilbo to simply leave the comfort of his home in the first place.

What is Chapter 12 in The Hobbit? Chapter 12 of The Hobbit is an important one. Bilbo finally earns his keep in the eyes of Thorin and the dwarves by stealing a cup from Smaug's treasure pile, but the dragon doesn't take the theft lying down. He torches most of the mountain and forces the group inside, where Bilbo can prove himself again.

How does Bilbo show his value to the group when goblins approach the cave? In his first encounter with the goblins, for example, Bilbo proves useful by shouting enough to awaken Gandalf, who, in turn, ends up saving the whole company.

What is the main problem in The Hobbit book? In The Hobbit, the primary external conflict is the quest to reclaim the Lonely Mountain (while many minor external conflicts include Gollum, the orcs, and the spiders), and the primary internal conflict is Bilbo adventurous spirit (his 'Took' side) and his desire to be home and comfortable (his 'Baggins' side).

What The Hobbit teaches us about finding our life quests? To determine your higher-level quest, determine what you do well, what you enjoy, and what you think the world needs. At the intersection of these three circles you may find your life's quest.

What is the moral of the story The Hobbit? The Hobbit is telling us to take risks. This is what life is about, taking yourself out of your comfort zone and seeing what you are made of. Bilbo realises that there is more to life and the world than just being an ordinary Hobbit living in The Shire.

What is the main point in The Hobbit? The Hobbit may be read as Tolkien's parable of World War I with the hero being plucked from his rural home and thrown into a far-off war where traditional types of heroism are shown to be futile. The tale as such explores the theme of heroism.

What is the symbolism of The Hobbit book? Symbols, such as Sting, the ring, and the Arkenstone, are used in The Hobbit to represent abstract ideas. Bilbo names his sword Sting as he begins to feel like a hero after he kills the large spider. The ring represents the ability to get away with things without being caught because it turns its wearer invisible.

What is Smaugs' weakness? The townsmen's arrows and spears proved useless against the dragon's armoured body. The thrush told Bard the Bowman of Smaug's one weak spot, a bare patch on the dragon's belly. With his last arrow, Bard killed Smaug by shooting into this place.

Why did Bilbo steal the Arkenstone? Answer and Explanation: Bilbo originally takes the Arkenstone because it is beautiful, and he decides that it will be his share of the treasure. Thorin never said that the Arkenstone was off limits, so he believes that he can claim it for himself. Like the dwarves, Bilbo is drawn to its luminescent beauty.

What exactly is the Arkenstone? The Arkenstone of Thráin, also known as the Heart of the Mountain, was a great and wondrous jewel that was sought by Thorin II which had been discovered beneath the Lonely Mountain during the reign of Thráin I, and then shaped by the Dwarves.

How did Bilbo betray the dwarves? Thorin and his dwarves fortify the entrance to the mountain hall, and are besieged by the Wood-elves and Lake-men. Bilbo tries to ransom the Arkenstone to prevent fighting, but Thorin sees his action as betrayal, and banishes Bilbo.

What does Bilbo value most? Adventurousness: Bilbo craves adventure. He is open and accepting of others who are different from him, which is not something that can be said of most other hobbits. He agrees to go on an adventure in which he has no end goal; he just goes for the sake of adventure.

How did Bilbo hide from the goblins? Bilbo escapes by an extraordinary leap over Gollum's head and through the passageway, but he runs into the Goblins. As they rush at him, he slips the ring on, becoming invisible, and narrowly escapes to the outside where it is light and the Goblins cannot follow.

What is the main message of The Hobbit? The Hobbit's main theme is Bilbo's development into a hero, which more broadly represents the development of a common person into a hero.

What is the main climax of The Hobbit? Climactic Moment: Bilbo saves Thorin just as the company is rescued by eagles. Resolution: Thorin and Bilbo become friends.

What is the life lesson of The Hobbit? This is what we can learn from hobbits: to take chances and enjoy the enigmatic, haphazard flavor of life. One of the most important themes in the book is gaining individual strength and courage to rely on oneself as opposed to others.

What is the whole point of The Hobbit? The unwilling hero of The Hobbit, Bilbo Baggins, is persuaded by the wizard Gandalf to leave his village, Hobbiton, and join Thorin and his 12 dwarfs to recover their stolen treasure, which is being guarded by the dragon Smaug.

What is the greatest adventure quote in hobbit? The Greatest Adventure – A Hobbit's Tale “The greatest adventure is what lies ahead. Today and tomorrow are yet to be said. The chances, the changes are all yours to make. The mold of your life is in your hands to break.”

What was the purpose of the quest in The Hobbit? The Quest of Erebor was the quest taken by Thorin and Company, accompanied by Bilbo Baggins and Gandalf, to reclaim the Dwarven kingdom of Erebor in the Lonely Mountain from the Dragon Smaug in T.A. 2941. It makes up the central story of The Hobbit, and also inadvertently led to the War of the Ring.

What are the 3 riddles in The Hobbit?

What does The Hobbit book talk about? The Hobbit is set in Middle-earth and follows home-loving Bilbo Baggins, the hobbit of the title, who joins the wizard Gandalf and the thirteen dwarves of Thorin's Company, on a quest to reclaim the dwarves' home and treasure from the dragon Smaug.

What is the main quest in The Hobbit? The dwarves are embarking on a great quest to reclaim their treasure from the marauding dragon Smaug, and Bilbo is to act as their “burglar.” The dwarves are very skeptical about Gandalf's choice for a burglar, and Bilbo is terrified to leave his comfortable life to seek adventure.

What did Bilbo call his book? In The Hobbit, Tolkien writes of the protagonist and title character Bilbo Baggins composing his memoirs. Bilbo thinks of calling his work There and Back Again, A Hobbit's Holiday. Tolkien's full name for the novel is indeed The Hobbit or There and Back Again.

Trail Guide to the Body Student Workbook: A Comprehensive Resource for Anatomy and Physiology

The "Trail Guide to the Body Student Workbook" is an invaluable tool for students studying anatomy and physiology. This workbook complements the textbook and provides a hands-on, interactive way to learn and reinforce the concepts presented in class.

Q: What does the workbook include?

A: The workbook includes a variety of learning materials such as diagrams, charts, quizzes, and exercises. It is designed to guide students through the complexities of human anatomy and physiology, helping them to identify and understand the different structures and functions of the body.

Q: How does the workbook support learning?

A: The workbook provides multiple opportunities for students to practice and apply their knowledge. It includes exercises that prompt students to label, identify, and describe various body structures. Quizzes and review questions help students assess their understanding and identify areas where they need further clarification.

Q: What is the purpose of the diagrams and charts?

A: The diagrams and charts in the workbook visually illustrate the anatomical structures and pathways of the body. They provide a clear and concise reference for students, helping them to easily identify and understand the relationships between different parts of the human body.

Q: How can students use the exercises in the workbook?

A: The exercises in the workbook are designed to reinforce the concepts learned in class. Students can complete the exercises independently or in groups to test their knowledge, identify areas of improvement, and deepen their understanding of human anatomy and physiology.

Q: What are the benefits of using the "Trail Guide to the Body Student Workbook"?

A: The workbook offers numerous benefits for students:

- Reinforces classroom learning
- Provides hands-on practice and interactive activities
- Aids in the understanding of complex anatomical structures
- Assesses student understanding through quizzes and exercises
- Facilitates better preparation for exams and laboratory practical

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