

Gold Penny Lab

Objective: Students will be observing Metallic Bonding and a single replacement reaction.

Materials:

- Zinc Powder – Zinc can be rinsed with water and used again for this lab.
- 2 M NaOH (Extremely Caustic, Goggles Required)
- Beaker with Water
- Evaporating Dish
- Bunsen Burner



Procedures:

1. Place a few grams of Zinc into an evaporating dish.
2. Add about 10mL of NaOH
3. Slowly heat the solution, be careful not to boil the solution.
4. Add a penny and simmer until the penny becomes silvery. It may be helpful to cover the penny in Zinc. (You may need to flip the penny to cover the sides equally.)
5. Use tongs to pick up the penny and drop it into a beaker of water to rinse it.
6. Hold one edge of the penny with tongs and flip it back and forth in the fire for a few seconds. Repeat until the penny turns gold.
7. Immediately drop it into the water again.

Results:

1. Predict the products and balance the equation: $\text{Cu} + 2\text{NaOH} \rightarrow \text{Zn} + \text{Cu}_2\text{OH}_2$
2. What type of reaction occurred when you replaced the Copper with the Zinc? **Single Replacement**
3. What type of bonding was this due to? Defend your answer. **Could defend metallic bonding (due to alloy that is formed) or ionic bonding (due to zinc hydroxide/copper hydroxide bond).**
4. Name the alloy given to the two metals found on the penny. (You may need to look this up!) **Brass**
5. Pennies made prior to 1982 are made from an alloy composed of 95% Copper and 5% Zinc. Why might pennies be made from an alloy rather than pure copper? **Cost, strength, prevents rust, etc.**
6. If you examined your penny microscopically, do you think the penny would be homogeneous or heterogeneous throughout? **Homogeneous mixture due to the brass alloy**

Gold Penny Lab Answers

Dennis Arden Hooker



Gold Penny Lab Answers:

Gold in Giant Mark Yonash, 2019-07-16 Somewhere in the very far future mankind has gone through two more world wars and come out of those with one superpower wielded by one leader But the earth has suffered the devastating effects of those wars upon the flora fauna and landscape and it is now struggling to survive The population is currently living hand to mouth on government handouts for food and water given in pill forms Unsure of the future a high ranking general in the new world superpower uses two scientists to develop a time bending vehicle and attempts to go back in time to explore the possibility of gaining riches he encounters a lot more than he bargained for discover the origins of gold and its placement around the globe travel to the lost city and interface with the culture of Atlantis realize that human giants once walked the face of the earth and discover how the moon got its face *1500 Science Test Questions/Answers* Dennis Arden

Hooker, 2025-01-01 *1500 Science Test Questions w Keys Answers Statistical Analysis For Science Teachers Upper Elementary to College* Dr Hooker researched and developed a book of 1500 Science Test Questions together with the Bloom's Taxonomy Discrimination Index the Key etc The book was funded through the National Science Foundation for teachers of Upper Middle School through College Science Programs *1500 Science Test Questions* is an excellent tool for teachers to develop their own tests and for students to study for High School and College proficiency exams *Gold Digger Omnibus #6*

Fred Perry, More adventures of Gina and Cheetah **Popular Mechanics**, 2002-09 Popular Mechanics inspires instructs and influences readers to help them master the modern world Whether it's practical DIY home improvement tips gadgets and digital technology information on the newest cars or the latest breakthroughs in science PM is the ultimate guide to our high tech lifestyle **Financial World**, 1964 *Nightshade* Andrea Cremer, 2010-10-19 The first book of the internationally bestselling Nightshade series by New York Times bestselling author Andrea Robertson Calla is the alpha female of a shape shifting wolf pack She is destined to marry Ren Laroche the pack's alpha male Together they would rule their pack together guarding sacred sites for the Keepers But then Calla saves a beautiful human boy who captures her heart Calla begins to question everything her fate her existence and her world and the orders the Keepers have asked her to follow She will have to make a choice But will she follow her heart if it means losing everything including her own life Calla's story continues in WOLFSBANE formerly published under Andrea Cremer

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web mar 30 2023 template 1 letter for visa application for family invitation your name your address city state zip code country date embassy consulate of country address city state zip code country dear sir madam i am writing this letter to invite my relationship name of family member to visit me in city state country

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web i confirm that i will be funding full name of visitor s during their stay in salford manchester i have enclosed evidence of this in the form of type of evidence e g bank statements sponsor letter if your visitor s will be staying with you during their stay include the paragraph below

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web sample invitation letter template your name local u s address phone number date u s consulate or embassy city country of location of u s consulate or embassy to whom it may concern am currently a graduate undergraduate student scholar at northeastern university in f 1 j 1 status

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web dear papa mommy i am fine here and hope that you are fine too with utmost pleasure i am inviting you to visit us and

spend your vacation in the usa with us during your vacation here we will visit many places in the us such as niagara falls new york atlantic city washington dc los angeles las vegas and many such places

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