

History Channel--Modern Marvels: Copper

1. What is the major company in San Diego? _____
2. T F Ships use a lot of copper.
3. Where is copper found in the ships?
 - a. _____
 - b. _____
 - c. _____
 - d. _____
 - e. _____
4. Copper is resistant to _____ corrosion.
5. Copper-Nickel is used in seawater pipes.
 - a. What is the percentage of copper? _____
 - b. Of nickel? _____
6. How are propellers made? _____
7. What does inspection look for? _____
8. Copper is antimicrobial.
 - a. What does copper protect ships from? _____ and

9. Copper prevents sea life from adhering to hulls.
 - a. How is it applied to the hulls? _____
10. T F Copper exists in electronic gadgets.
11. Beyond corrosion, killing bacteria, and conductivity, copper is beautiful.
 - a. What happens to copper on statues and roofs? _____
12. T F In ancient times, copper could be found on the ground.
13. What did the ancient Egyptians discover? _____
 - a. What is smelting? _____
 - b. How does smelting work? _____
14. Copper and tin makes bronze.
 - a. Who discovered bronze? _____
15. What replaced the Bronze Age? _____
16. Copper mining uses some the largest _____ in the world.
17. What are the steps in the copper mining process to bring copper to the surface.

- a. Exploration by holes.
- b. _____
- c. Explosive devices
- d. Loosens ore
- e. _____
- f. Copper at surface is exposed to oxygen
- g. _____
- h. Copper sulfate

18. Deeper copper is in sulfite form. It uses a different process for extraction

- a. _____
- b. Water and chemicals added to create a slurry.
- c. _____
- d. Scooped off top
- e. _____ pure copper, not pure enough for electronics
- f. Electro refining
- g. Acid bath for _____ days

19. Each ton of ore = _____ of copper.

20. 1,000,000 tons of copper is _____ each year.

21. What industry uses a lot of recycled copper? _____

22. What is the industry name for pipes? _____

23. What process is used to create tubes? _____

24. Who applied early copper tubing for water? _____

25. Antimicrobial properties, perhaps used on hospital surfaces e coli, staph

26. What type of metal is used to make bells? _____

a. What is the percentage of copper? _____

b. What is the percentage of tin? _____

c. Why is this percentage of mixture used? _____

27. How are bells made? _____

28. What happens if the bell metal is not cooled consistently? _____

29. What happens to copper when you hammer it? _____

30. What temperature do you take copper annealing? _____

31. Copper has a crystal structure. Patina is a crystalline structure on surface.
- How long does it take copper to show a patina? _____
32. Copper's 29th electron moves freely. Electrons drift through atoms of copper.
- It is easy to accelerate _____.
33. Copper is second to silver but _____.
34. Aluminum is used for long distance electrical transmission due to weight.
- Aluminum is _____ than copper.
35. Copper wire and cables are used for communication lines under the ocean.
- Cables require _____ copper.
36. New alloys expand coppers' reach.
- What does copper alloy easily with?

 - _____
 - _____
 - _____.
37. Near future, thread in clothing for tiny antennae.
- What alloys are used for the wire thread?
 - _____
 - _____
 - _____
38. What does aluminum add to copper? _____
39. How are the airplane struts made? Casting
40. Tensile testing determines _____.
41. Does copper have usefulness into the future? _____