

~ Solutions Webquest ~

NAME _____

Date _____

The Dissolving Process

<http://www.mhhe.com/physsci/chemistry/essentialchemistry/flash/molvie1.swf>

Look at the above animation. Explain how an ionic compound such as NaCl will dissolve in water.

<http://www.chem.iastate.edu/group/Greenbowe/sections/projectfolder/flashfiles/thermochem/solutionSalt.html>

Look at the above animation. Explain why you do not see the salt particles after it is added to the water. Are the salt particles still present in the solution? Explain.

<http://www.solubilityofthings.com/basics/>

1. What are the two parts of a solution? _____
2. Define a solute:
3. Define solvent:
4. Define solubility:
5. What is equilibrium in chemistry?

<http://www.chem.purdue.edu/gchelp/solutions/character.html>

6. The concentration of a solution represents the _____ of _____
_____ in a unit amount of _____ or of solution.

7. Concentrated solutions have a _____ amount of solute.

8. Diluted solutions have a _____ amount of solute.

<http://ga.water.usgs.gov/edu/solvent.html>

9. Why is water called a “universal solvent”?

10. What makes water an excellent solvent?

11. How do water and our kidneys work together?

12. Why does salt dissolve in water?

http://www.solubilityofthings.com/basics/factors_affecting_solubility.php

13. What are the five factors that affect solubility?

1. _____

2. _____

3. _____

4. _____

5. _____

14. How is solubility affected by temperature?

15. Define polarity:

16. How does polarity affect solubility?

17. What is the aphorism used by chemists to describe polarity?

18. How does the pressure of a gas affect solubility?

19. How does molecular size affect solubility?

20. How does stirring affect solubility?

<http://www.kentchemistry.com/links/Kinetics/SolubilityCurves.htm>

21. What are solubility curves used for?

22. On the line=_____ (_____ can _____ hold anymore _____)

23. Below the line=_____ (_____ hold more _____)

24. Above the line=_____ (holding _____ than it should,
_____ condition)

25. What mass of the following solutes will dissolve in 100 ml of water?

KNO₃ at 50 C? _____

NH₄ at 50 C? _____

NaNO₃ at 50 C? _____

26. Which of the above is the most soluble? _____

27. Which salt on the entire graph is most soluble at 80C? _____

28. Which salt is least soluble at 10 C? _____

29. Which salt shows the least solubility change when the temperature is increased from 0 to 100 C? _____

30. For each of the following solutions, state whether the solution is saturated, unsaturated or supersaturated in the following conditions:

A) at 30C, 70 g of KNO_3 is dissolved in 100 g of water _____

B) at 20 C 0 g of KClO_3 is dissolved in 100 g water _____

C) at 100 C , 30 g of NaNO_3 is dissolved in 100 g of water _____

D) 50 g of NH_4Cl at 70C is dissolved in 100 g water. _____

<http://www.kentchemistry.com/links/Math/colligativeprop.htm>

31. Define dissociation.

32. What is boiling point elevation?

33. What is freezing point depression?

34. Write the dissociation of and circle the one that will affect BP/FP the most:

NaCl _____

CaCl_2 _____

$\text{Al}(\text{NO}_3)_3$ _____

35. Answer the Regents Questions at the bottom of the page.

Check your answers and read the explanations.