Chapter 13 and 14 Review Name: _____

1. What is a heat island? Cities are hotter
2. What is zoning? designating specific buildings in specific areas
3. Identify 5 reasons for Urban Sprawl.
   1. over population
   2. affluence
   3. high land use per capita
   4. American dream
   5. cheap oil
4. Identify 3 advantages of cities.
   1. site of jobs
   2. education
   3. conservation (recycling/energy)
5. Identify 7 disadvantages of cities.
   1. Noise poll.
   2. light poll.
   3. hotter
   4. no plants
   5. more diseases
   6. air pollution
   7.
6. Identify 3 ways to grow cities sustainably.
   1. grow up -
   2. SMART growth - UGB
7. Identify and give an example of the 4 types of hazards.

Hazard	example
Physical	flood
Chemical	lead, mercury, DDT, BPA
Biological	E. coli, flu, HIV
Societal	smoking, driving

8. Explain how antibiotic resistance is creating a larger biological hazard. bacteria cannot be killed by current drugs, making these diseases more deadly
9. What disease is the largest killer worldwide? flu
10. What is an increased risk of this disease? old age, young
11. How is Malaria transmitted? mosquito
12. What type of disease is malaria? protist
13. How have people been fighting Malaria? pesticides
14. What are 2 problems with DDT.
    1. Bioaccumulate / toxic to people
    2. Biomagnifies - increased ~~dose~~ levels up food chain
15. Identify and describe 3 chemical hazards.
    1. Mercury - neurotoxin
    2. Lead
    3. BPA - plastics - endocrine system disruptor

16. Explain how chemicals can effect organ systems.

Organ system- describe what it does	Substances that can effect	How they effect that system.
Immune: protects against pathogens	HIV - pathogens	Combat immune system. Make it fight itself
Nervous: thinking, senses, muscles	Mercury, Lead Cadmium	reduce cognative function / musculature / intelligence
Endocrine: Hormones	BPA, PBDE, aldicarb	Disrupt reproduction & developmt, infertility.

17. Explain what happened in Bhopal, India in 1984. Chemical company exploded → released CN gas and thousands died.

18. What is toxicology? Study of harmful effects of substances

19. List and describe 5 factors that can effect the harm of a substance.

Factor	Description
Dose	
Exposure (Chronic vs Acute)	
Sensitivity	
Persistence (Bioaccumulates)	

20. How many chemicals are tested for toxicology in the US? 2%

21. What is risk Analysis? Probability of harm

22. What is LD-50? Lethal dose to 50%

23. How would you calculate LD-50? dose vs % of pop. dead - find 50% proportion

24. Identify 2 sources of heavy metals (such as lead or mercury).
    a. Coal power plants
    b. paint / pipes
    c. factories

25. What chemicals are the dirty dozen? textbook

26. What is synergy? 2 things have greater effect combined

In a recent *Scientific American* article (February 2010), *The Art of Bacterial Warfare*, the authors state that 33% of humans are carrying the *Mycobacterium tuberculosis* bacteria—many without actually getting sick. In addition, 50% of the human population is carrying the bacteria *Helicobacter pylori* (which causes stomach ulcers), and 50% is carrying *Staphylococcus aureus* (which causes skin infections). Knowing that carriers are individuals who often do not show any visible signs of disease, what challenges can you think of for health care officials trying to control these types of communicable diseases?

27. • Sterilization won't work if disease is transmitted through air.

Vocabulary

Understand and be able to apply each of these terms.

1. Non-transmissible Disease –
2. Infectious Disease –
3. Viruses –
4. Resistance –
5. Antibiotics –
6. Neurotoxins –
7. Endocrine hormone disruptors –
8. Solubility –
9. Persistence -
10. Biomagnification –
11. Mortality –
12. Risk Assessment –
13. Teratogen –
14. Mutagen-
15. Carcinogen-
16. LD-50
17. ED-50
18. Bioaccumulation –
19. Synergy-

Critical Thinking

Be able to read, analyze, and give complete answers to questions like these.

1. Give an example of a **non-transmissible disease.**

   heart disease

2. Give an example of a disease caused by each of the following infectious agents:

   a. Multicellular parasite – lice
   b. Protozoa – malaria
   c. Bacteria – E. coli
   d. Virus – flu, rhinovirus

3. Why are AIDS, SARS, and the H1N1 Swine Flu all considered **emergent diseases**? What makes these diseases so dangerous?

   new.
   - Body has little/no defense endured

4. During the 1940s through the 1960s, malaria was controlled partially by spraying large doses of pesticides such as DDT. What was the problem with this strategy?

   toxic

5. Bacteria are able to evolve unusually quickly and develop resistance to drugs like antibiotics. Explain what characteristics give them this ability.

fast reproductive time

6. Give three examples antibiotic misuse that could promote resistance.

- taking when have a virus
- not taking full dosage

7. Explain the difference between **teratogens** and **carcinogens.** Give an example of each.

Birth defects — cancer

- mercury
- smoke

8. What two heavy metals were given as examples of **neurotoxins**?

Lead, Mercury

9. Endocrine hormone disruptors are classified as **hormone mimics** or **hormone blockers.** Explain how each affects the body.

has response — Stops response

10. What kind of toxin is BPA? How are people exposed to it?

Endocrine — plastics

11. Complete the sentence: "Any synthetic or natural chemical has the potential to cause harm if the dose is high enough."

12. What is more likely to persist and accumulate in the body: water-soluble or oil-soluble toxins?

Stay in fatty tissue

13. If a persistent toxin ~~bioaccumulates~~ biomagnifies through a food chain, what trophic level is it most likely to affect?

higher (3° consumer)

14. Caffeine has an LD50 level of 192mg/kg. Nicotine is 50mg/kg. Which one is more deadly?

Nicotine

15. Give one reason why someone might be biased in their risk assessment of a specific toxin.

anecdotal

16. Why is mercury in seafood considered an acceptable risk by most people?

low levels