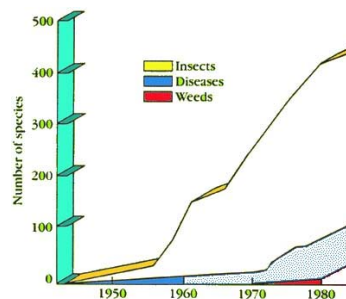

Student Name _____

Class _____

- Hippocrates, known as the 'Father of Medicine', recommended willow bark be used to treat pain and fever. First Nations people used willow bark to make a medicinal tea. Willow bark acts like ...
 - aspirins
 - proteins
 - vitamins
 - enzymes
- The organic compounds that are an energy source for metabolism are the ...
 - Lipids
 - Proteins
 - Nucleic Acids
 - Carbohydrates
- Special protein molecules that regulate chemical reactions in living organisms are ...
 - lipids
 - enzymes
 - vitamins
 - catalysts
- Maltose + Water → Glucose**
 $C_{12}H_{22}O_{11} + H_2O \rightarrow 2C_6H_{12}O_6$
This word equation is an example of a substance that has been broken down in the body by ...
 - photolysis
 - photosynthesis
 - hydrolysis
 - metabolism
- Iron is a crucial part of red blood cells, which job it is to ...
 - transport oxygen
 - fight infection
 - stop bleeding
 - store energy
- To make organic compounds, plants take in ...
 - water and trace elements
 - inorganic compounds
 - glucose and maltose
 - organic molecules
- When water moves through the walls of the plant's roots from an area where there are more water molecules to an area where there are fewer water molecules this process has occurred ...
 - osmosis
 - diffusion
 - dilution
 - active transfer
- The three numbers on a bag of fertilizer refer to the percentage of chemicals used as plant nutrient supplements. A bag of fertilizer containing **5 - 10 - 5** means there are equal amounts of two chemicals and twice as much of this chemical ...
 - carbon
 - nitrogen
 - phosphate
 - potassium
- Crop production has doubled worldwide due to the use of ...
 - genetic crops
 - organic nutrients
 - inorganic minerals
 - artificial fertilizers

10. The use of DDT was recognized as having potentially harmful effects. What effect would banning the use of DDT have in the control of malaria?
- The incidence of malaria would rise
 - Malaria would be wiped out entirely
 - The toxins in malaria would disappear
 - Malaria would decline worldwide
11. No matter how it is developed, a pesticide (insecticide) is used to control pests. It is now widely recognized that minimizing the effects pesticides occurs ...
- artificially
 - naturally
 - organically
 - chemically
12. Fungicides control ...
- insects
 - weeds
 - disease
 - invertebrates
13. In 1962 a Canadian biologist and writer Rachel Carson described, with scientific evidence, how pesticides had spread throughout the environment in her book ...
- Silent Killer*
 - Silent Night*
 - Silent Storm*
 - Silent Spring*

14. This graph represents the numbers of organisms surviving the application of pesticides over time.



A good title for the graph would be ...

- Pesticide Resistance
 - Populations of Pests
 - Extinction of Pests
 - Pesticide Application
15. Sodium hydroxide is used in household cleaners and as a reagent in film processing. The properties that identify it as a base are, it ...
- feels slippery, and has a pH of more than 7
 - feels rough with texture, and has a pH of 7
 - is insoluble, and has a pH of 7
 - is soluble in water and has a pH of less than 7
16. The pH scale is a way of comparing the ...
- “power of hydrogen ions”
 - solubility of acids and bases
 - reactivity of acids and bases
 - relative acidity or alkalinity of a substance.
17. Red cabbage juice, grape juice and tea was used by a student in an experiment to act as an indicator because it changed color according to the type of substance it was added to. These types of indicators were used to ...
- identify the pH of the substance it was added to
 - identify a substance as an acid, a base, or neutral
 - change the taste of the substance being tested
 - test the substance for the presence of carbon dioxide

18. In neutralization reactions acids and bases react together when they are mixed. These types of reactions produce ...
- A. a salt and water
 - B. carbon dioxide gas
 - C. neutral acids
 - D. neutral bases
19. $\text{SO}_2(\text{g}) + \text{H}_2\text{O}(\text{l}) \longrightarrow \text{H}_2\text{SO}_3(\text{aq})$ - this chemical equation describes the formation of ...
- A. acid shock
 - B. neutralization
 - C. sulfur dioxide rain
 - D. acid precipitation
20. In 1996 an agreement between Canada and the US targeted a reduction by the year 2000, in industrial exhaust emissions of
- A. 2%
 - B. 7%
 - C. 10%
 - D. 20%
21. $\text{Ca}(\text{OH})_2 + \text{H}_2\text{SO}_4 \text{ ----- } \text{CaSO}_4 + \text{H}_2\text{O}$
What is the chemical used to neutralize acid rain precipitation?
- A. Hydrogen Sulfide
 - B. Calcium Sulfate
 - C. Sulfuric Acid
 - D. Calcium Hydroxide
22. A catalytic converter helps the formation of CO_2 and H_2O , reducing CO and NO_2 . The purpose of the converter is to encourage ...
- A. complete oxidation
 - B. biodegradation
 - C. photoremediation
 - D. corrosive by-products
23. The key to scrubbing exhaust gases is the addition of calcium oxide (CaO), which reacts with the sulfur dioxide gas ($\text{SO}_2(\text{g})$) to form calcium sulfite (CaSO_3) – the sorbent, which is soluble in water. The role of the sorbent is to ...
- A. clean and dissolve the sulfur particles
 - B. penetrate and destroy the sulfur particles
 - C. absorb or capture the sulfur oxides
 - D. redirect and neutralize the sulfur oxides
24. 'Percent' of weight, or volume, means how much there is in a weight or volume sample of 100. Concentrations of chemicals are usually measured in ...
- A. percentage of minute parts in one million
 - B. how many million parts are present
 - C. millions to one or grams to kilograms
 - D. parts per million or milligrams per Litre
25. The community of Lynnwood Ridge in Calgary has a toxic substance in the soil that accumulates in the human body, as a result of many exposures over time. This type of toxicity is ...
- A. safe
 - B. acute
 - C. chronic
 - D. invasive
26. In LD50, 50 represents 50% of the subject group that will die, if they are given the specified dose, ...
- A. In 50 doses
 - B. all at once
 - C. over 50 hours
 - D. 50 times

27. Most of our fatal-dose information for humans comes from ...
- A. **accidental-exposure case studies**
 - B. **experiments during the World Wars**
 - C. **case studies during the 1950's**
 - D. **stories that were once urban legends**
28. For every single molecule of human-made pesticide - nature forms this many natural pesticides...
- A. **1,000 molecules**
 - B. **10,000 molecules**
 - C. **100,000 molecules**
 - D. **1 million molecules**
29. As the world population grows waste production also grows and the proper handling of this waste is a concern. All wastes entering the environment are potentially harmful and must be treated, or be broken down into ...
- A. **non-combustibles**
 - B. **anti-pollution devices**
 - C. **antibacterial waste**
 - D. **nonpolluting compounds**
30. Macro-invertebrates – visible to the human eye – live in aquatic environments depending on the pH level and the amount of dissolved oxygen present. Macro-invertebrates are organisms ...
- A. **with a backbone**
 - B. **without a backbone**
 - C. **that only live one day**
 - D. **that can only be seen with a microscope**
31. Microscopic organisms (bacteria) can cause serious health problems if they are present in sufficient numbers. Samples are taken to identify their presence to ...
- A. **avoid contamination of the water supply**
 - B. **determine their life cycle**
 - C. **indicate their life expectancy**
 - D. **determine if pollution is critical**
32. Dissolved oxygen, acidity, heavy metals, nitrogen, phosphorus, pesticides, and salts are
- A. **physical factors that determine water quality**
 - B. **biological indicators of water quality**
 - C. **chemical indicators of water quality**
 - D. **chemical compounds that pollute water**
33. Pollutants entering the environment from specific locations are point source pollutants. those that enter the environment from locations that cannot be easily monitored or controlled are called ...
- A. **organic pollutants**
 - B. **biochemical pollutants**
 - C. **biodegradable pollutants**
 - D. **non-point source pollutants**
34. There are different zones in a water system that help us to identify the level of pollution present or absence of oxygen. The only zone where you will not be able to find fish is the ...
- A. **Clean zone**
 - B. **Septic zone**
 - C. **Recovery zone**
 - D. **Decomposition zone**
35. Wind speed, prevailing wind patterns and the chemical properties of the airborne chemical pollutant are factors that determine the pollutant's ...
- A. **concentration and pH**
 - B. **strength and toxicity**
 - C. **harmfulness and color**
 - D. **direction and distance**

36. Atmospheric ozone is the chemical that occurs high in the atmosphere where it maintains a shield around the Earth protecting everyone from harmful UV radiation from the Sun. Ozone at the Earth's surface is.
- A. non-poisonous
 - B. highly corrosive
 - C. an irritating toxin
 - D. a highly toxic substance
37. 1 chlorine atom can destroy 100, 000 ozone molecules. Chlorine is created in the upper atmosphere by our use of ...
- A. chlorofluorocarbons
 - B. carbonated soft drinks
 - C. water treatment plants
 - D. sodium chloride - NaCl
38. A septic tank is a large underground container that traps grease and large solids. The remaining liquid waste is distributed through these, which lead into a drainage area containing gravel.
- A. perforated pipes
 - B. wide-mouth tubes
 - C. plastic cylinders
 - D. filtering sieves
39. A waste facility treats sewage in three levels or steps. The biological level is ...
- A. primary
 - B. secondary
 - C. tertiary
 - D. not included
40. Permeable ground collects naturally filtered drinking water in underground cavities called ...
- A. aquifers
 - B. aquaseas
 - C. water caves
 - D. water bowls
41. Bacteria deep in anaerobic environments remove chlorine from harmful chlorine-containing compounds, such as PCB's, by replacing them with hydrogen atoms – which can then be used as ...
- A. water
 - B. food
 - C. activators
 - D. hydrolizers
42. Waste can be reduced, recycled, recovered or reused, but most of it is placed in landfill sites. The most preferred option is to ...
- A. reuse
 - B. reduce
 - C. recycle
 - D. recover
43. Bioreactors, a new technology in a sanitary landfill site, speed up the rate of organic waste biodegradation by adding
- A. oxygen
 - B. acid
 - C. base
 - D. water
44. Plants able to absorb and accumulate large amounts of harmful chemicals are grown, harvested and processed. This technique – to reduce soil or groundwater contamination – is called ...
- A. Photosynthesis
 - B. Phytoremediation
 - C. Plant Meiosis
 - D. Photolysis

Numerical Response Questions

1. Nitrogen is important for all living things. The **Nitrogen Cycle** enables living organisms to utilize the free nitrogen in the atmosphere because of **nitrogen fixation**.

What is the percentage (to the nearest tenth) representing the amount of free nitrogen in the atmosphere?

7	8	.	0
	.	.	
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

2. **Indicators** are used to identify different types of **organic molecules**. Match the indicator used for each type of Organic molecule listed.

Indicators:

- 1 - Benedict's solution
- 2 - Biuret solution
- 3 - Iodine solution
- 4 - Translucent Spot on Brown paper

4 3 2 1
Fat/Oil Starch Protein Glucose

4	3	2	1
	.	.	
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

3. **Acidity** is measured on the pH scale. The scale varies according to the strength of a particular chemical.

- 1 – Drain cleaner has a pH of 13.8
- 2 - Tomatoes have a pH of 4.2
- 3 – Battery Acid has a pH of 0.5
- 4 – Baking Soda has a pH of 8.2

Order the chemical substances described above from the
 strongest Acid to strongest base

3	2	4	1
	.	.	
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9