

Science In Action 9 - Numerical Response Questions - Environmental Chemistry

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?

	.	.	
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. **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 - Iodine solution
- 3 - Translucent Spot on Brown paper
- 4 - Biuret solution

Fat/Oil Starch Protein Glucose

	.	.	
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. **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 the strongest base

	.	.	
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

4. The environment is very sensitive to the addition or removal of toxic chemicals in large amounts. An oil spill, such as the one from the **Exxon Valdez**, was very damaging to the environment.

In what year did this environmental tragedy occur?

	.	.	
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