

### What's so Equal about Equilibrium? Article Questions

Name \_\_\_\_\_

Period \_\_\_\_\_

In the first column, write "A" or "D" indicating your agreement or disagreement with each statement. As you read, compare your opinions with information from the article. In the space under each statement, cite information from the article that supports or refutes your original ideas.

| Me | Text | Statement   |
|----|------|---|
|    |      | 1. When a process reaches equilibrium, there are no further changes.  |
|    |      | 2. To show a chemical equilibrium, chemists use a double arrow.   |
|    |      | 3. Natural and human-generated changes can change the equilibrium in our atmosphere.  |
|    |      | 4. The stratosphere is warming.   |
|    |      | 5. Using Le Chatelier's principle, it is easy to predict how the equilibrium of a system will shift in response to changing conditions. |

Read the article "What's So Equal about Equilibrium?" and then fill-in the chart and answer the following questions.

|                                    | <i>Equilibrium Examples</i> |
|------------------------------------|-----------------------------|
| <i>Everyday<br/>Equilibrium</i>    | Dynamic                     |
|                                    | Shifting                    |
| <b>Chemical<br/>Equilibrium</b>    | Dynamic                     |
|                                    | Shifting                    |
| <i>Atmospheric<br/>Equilibrium</i> | Dynamic                     |
|                                    | Shifting                    |

1. Describe the two things that are happening that describe the “*dynamic equilibrium*” involving chlorine within a fish tank.
2. Why do chemists often use a single arrow ( $\rightarrow$ ) in reactions?
3. Why do chemists often use a double arrow ( $\leftrightarrow$ ) in reactions?
4. List the four factors stated in the article that can cause a chemical equilibrium to “shift”.
5. What is the function of the earth’s ozone layer?
6. What creates ozone in the stratosphere?
7. Name two catalysts that break ozone down in the stratosphere.