|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | A | Amount transferred A B  | B | Amount transferred B A  |
| Step 0 | 50 ml |  | 0 ml |  |
| Step 1 |   | \_\_ -50 = |   | \_\_ - 0 = |
| Step 2 |   |  |   |  |
| Step 3 |   |  |   |  |
| Step 4 |   |  |   |  |
| Step 5 |   |  |   |  |
| Step 6 |   |  |   |  |
| Step 7 |   |  |   |  |
| Step 8 |   |  |   |  |
| Step 9 |   |  |   |  |
| Step 10 |   |  |   |  |
| Step 11 |   |  |   |  |
| Step 12 |   |  |   |  |
| Step 13 |   |  |   |  |
| Step 14 |   |  |   |  |
| Step 15 |   |  |   |  |
| Step 16 |   |  |   |  |

**Equilibrium Lab**

**Procedure**

*Both partners will do this at the same time:*

1. Label the graduated cylinders: A and B.
2. Fill A with 50ml of water. B starts empty.
3. The partner in charge of A gets two straws. The partner in charge of B gets one straw.
4. Place straws/straw into *your* graduated cylinder (even if no water is present).
5. Place finger over the top hole of the straw, pull out, and transfer water into *your partner’s* graduated cylinder.
6. Record how much water is present in each graduated cylinder.
7. Repeat until you have done this 20 times.
8. Graph your data for A and B.

**Data Analysis**

**Analysis**

1. Describe what happened.
2. Did the volume in A ever equal the volume in B? If so, at what steps? What did the graph do at these steps?
3. Did the amount of water transferred from A to B ever equal the amount of water transferred B to A? If so, at what steps? What did the graph do at these steps?
4. A system is at *equilibrium* when it stops changing. At what step did your system stop changing? Cite evidence from your data table AND graph.
5. Based on your answers to questions 2, 3, and 4, describe what determined when the system reached equilibrium. Explain your reasoning.
6. Based on your answer to question 5, when do you think reversible chemical reactions reach equilibrium?