**Where have we used gradients**? (Use this table to record as many different circumstances as you can in which the concepts relate to this topic apply. Don't just record the obvious ones mentioned explicitly by the instructors, learn to find others. Compare yours to your partners from time to time. If you fill this one, print another!)

| Situation | Description | Scenario /Lab |
|---|---|---|
| Counter-Current Exchanger | An artery and a vein are aligned in contact but with blood flow in opposite directions. Heat flows from the artery (warmer) to the vein (cooler) as the blood is pumped out to an extremity and back. The orientation of the artery & vein maintains the gradient throughout the length and warms the blood as it returns toward the heart. | Fire & Ice |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**Gradient**: differences in quantity from one location to another; i.e. differences on sides of a membrane**.**