- The effect of pH on the curve: change in acidity can change curve, higher pH causes a right shift, so they bind faster and hit plateau faster with more acidity
- The effect of temperature on the curve: right shift happens with a decrease in blood temperature, but loading is elongated with a rise in temperature
- The effect of 2,3-DPG on the curve: reduces Hb affinity for oxygen, slower binding and hits the plateau slower

- Be able to explain the role of myoglobin in muscle
  - Myoglobin-O_2 Dissociation curve: saturates much quicker and has a longer plateau, higher affinity for oxygen
    - Influence of PO_2 and O_2 affinity
      - Longer plateau portion: myoglobin discharges O2 at very low PO2 levels, releases O2 quickly and in turn has a long plateau (runs out and stops bonding)
      - Steeper curve portion: very high affinity for O2, so fast bonding and release
- Be able to explain carbon dioxide transport in the blood
  - Know the 3 ways CO_2 is transported in the blood
    - dissolved into plasma (10%)
    - bound to Hb (20%: carbaminohemoglobin)
    - converted to bicarbonate (70%)
  - Know how bicarbonate is used to transport CO_2
    - Formed in RBCs with equation:
      - $CO_2 + H_2O = H_2CO_3 \rightarrow$ H+ and HCO3, reverse occurs in inspiration, CO2 and H2O are expired
    - Define carbaminohemoglobin: form of hemoglobin that is linked with CO2, method of carrying CO2 out of the body
    - Know the reversible reaction for bicarbonate in the RBCs
      - High PCO_2 (tissues) formation: CO2 and H2O combine to form carbonic acid (H2CO3), H2CO3 dissolves into H+(binds to Hb) and HCO3 (moves to plasma)
      - Low PCO_2 (lungs) formation: H+ and HCO3 combine to form carbonic acid, which dissolves into CO2 and H2O (expired)
      - How does this relate to Acid-Base balance in the body?
        - Blood pH is around 7, so body wants to keep an even acid-base balance in the blood, can't have too much H+ or basic compounds, when CO2 accumulates the PCO2 and H+ lower to keep a balance with increased ventilation (reverse true as well)