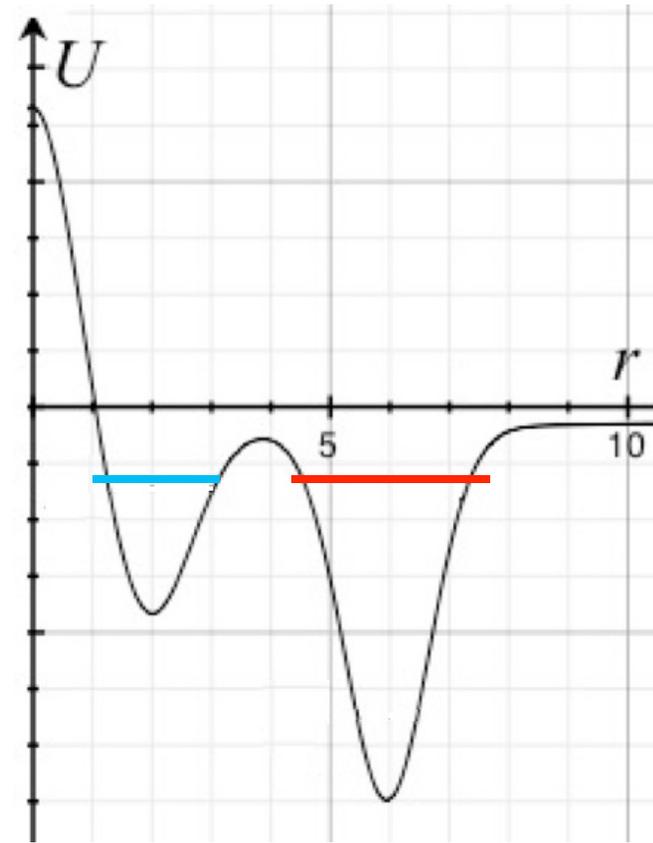
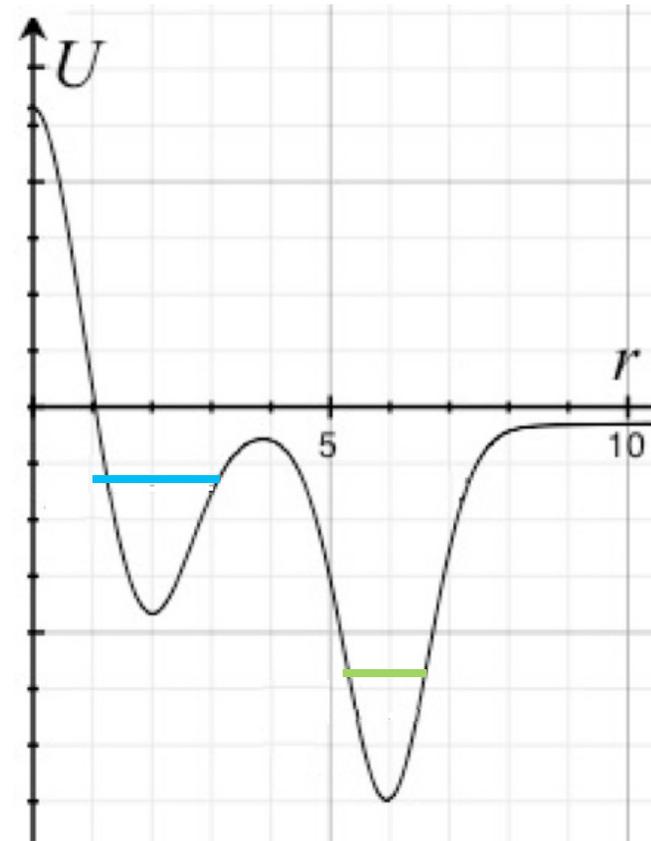


Implications of our temperature model



- Assume a molecule with a complicated Potential energy curve (top right, potential energy vs distance between molecules). The molecule get knocked from the blue state to the red state.
- Does the potential energy change?
- What about the molecule's thermal energy?

**Whiteboard,
TA & LA**



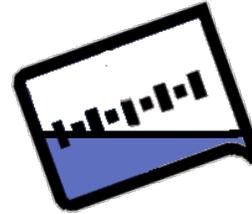
- The molecule started in the blue state in thermal equilibrium. The green state has the same temperature as the blue state.
- Does the potential energy change
- Does the thermal energy change?
- What would you call such a reaction chemistry?

**Whiteboard,
TA & LA**

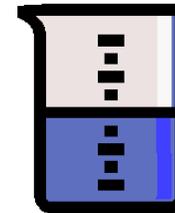
Experiment 1



If we have equal amounts of the same kinds of materials at different temperatures and put them together, what happens?



100 g of
water
at 80 °C



100 g of
water
at 20 °C

1. pretty close to 50 C
2. pretty close to 80 C
3. pretty close to 20 C
4. greater than 60 C
5. something else

12/12/13

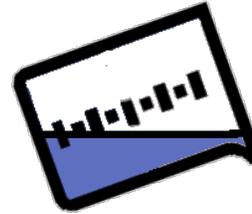
Physics 131

**Quick
Answer**

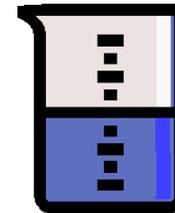
Experiment 2



If we have unequal amounts of the same kinds of materials at different temperatures and put them together, what happens?



100 g of
water
at 80 °C



200 g of
water
at 20 °C

1. pretty close to 40 C
2. pretty close to 80 C
3. pretty close to 20 C
4. greater than 60 C
5. something else

12/12/13

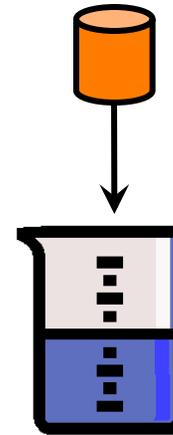
Physics 131

**Quick
Answer**

Experiment 3



If we have equal masses of different kinds of materials at different temperatures and put them together, what happens?



200 g of copper
at 80 °C

200 g of water
at 20 °C

1. pretty close to 50 C
2. pretty close to 80 C
3. pretty close to 20 C
4. greater than 80 C
5. less than 20 C