

## Trying out the clickers

### • Turn On.

- Press the power button. Your clicker will automatically 'join' the class.

### • Respond

- Select your choice on the clicker keypad, click the send button.
- To change your choice, choose a different answer, click send.
- Your clicker number will light up on the class screen. If it's not, you aren't being received



8/26/2010

Help is available online:  
[http://www.uakron.edu/it/instructional\\_services/dds/services/technology/clickers.dot](http://www.uakron.edu/it/instructional_services/dds/services/technology/clickers.dot)

## How much gardening or farming have you done?

- Lots, all the time
- Lots every once in a while
- Some every once in a while
- Very little
- None ever



<http://realfoodchallenge.org/files/Garden%20Workshop%2009.jpg>



<http://www3.gettyburg.edu/www.gettyburg.edu/doku/asset/1625027.jpg>

## Working - How much time a week do you spend working to make money during school?

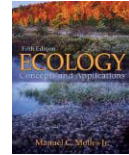
- None during the school year
- <5 hr a week
- 5-10 hr/week
- 10-20hr/week
- 20-40 hr/week
- Even more



<http://www.flickr.com/photos/24612420@N02/>

## School Work – for a 3 unit biology class, how much out-of-class time do you expect to spend studying, reading, doing homework, and preparing?

- None, I'll just go to lectures
- None, and I probably won't go to lectures either
- <3 hr a week
- 3-6 hr/week
- 6-10 hr/week
- 10-20 hr/week



## Out of Class Work

- University expects you to put in 3 hrs out of class for each hour in class
  - (9hrs/week for a 3credit class)
- So, a 16 credit semester is like a full time job
  - (3\*16 = 48hr)

**RESEARCH SHOWS THAT WORKING IN GROUPS IMPROVES LEARNING**



[http://www.k12file.wordpress.com/2008/07/college\\_students-studying.jpg](http://www.k12file.wordpress.com/2008/07/college_students-studying.jpg)



<http://www.gettyimages.com/detail/1211564/Research>

## Careers Assignment

- Investigate two career opportunities in biology that interest you.
  - They should be distinctly different from each other
  - At least one of these careers should require graduate or professional school education beyond the BS degree.
  - Learn more about these careers
  - Answer the questions about each career on the worksheet



<http://biosci.undergradcareers.net/bio/careers.html>



<http://biology.com/education/careers>

## Left Out in the Cold



A  
Case  
Study



## Read the case study and think about the questions, ~5 min.

- Joel had been looking forward to his first backpacking trip to the Canadian Rockies for some time.....
- Think about how to apply the principles of Chapter 5 to this situation, especially:
  1. List several ways that Joel is exchanging heat with his environment
  2. What could Joel do to warm up? Why would it work?
  3. Construct a graph that illustrates how Joel's body temperature should change with air temperature.



## Case Study: Out in the Cold

- List several ways that Joel is exchanging heat with his environment

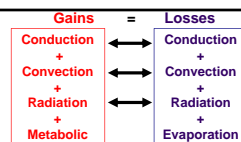
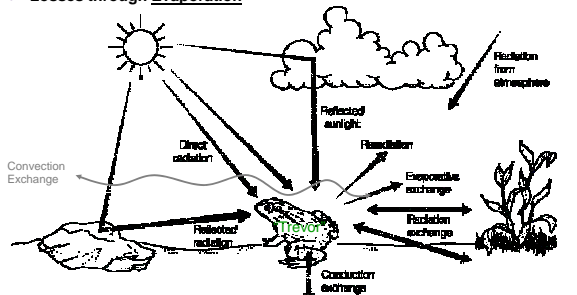


## Case Study: Out in the Cold

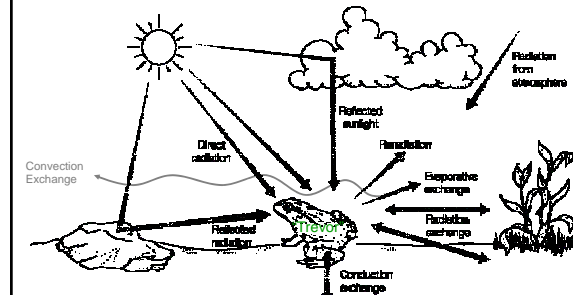
- List several ways that Joel is exchanging heat with his environment
- Is this list different for Trevor?



- Heat Gain = Heat Loss
- Exchange of heat (gains and losses) can occur through
  - Radiation
  - Conduction
  - Convection
- Also
  - Gains through Metabolic Heat Generation
  - Losses through Evaporation



Heat exchange requires that there be heat differences

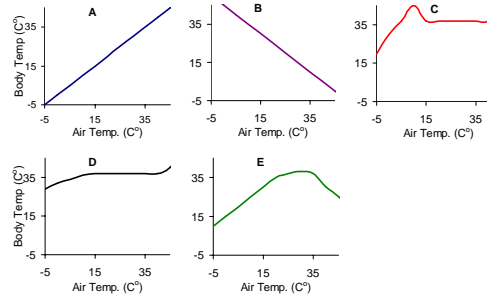


If Joel had worn his winter clothes, which of the following would have been most effective in helping him stay warm?

- a) More radiative heat gain
- b) More metabolic heat production
- c) Less convective heat loss
- d) Less conductive heat loss
- e) None of the above



Which graph should best describe how Joel's Body Temperature changed with Air Temperature?



Which graph should best describe how Trevor's Body Temperature changed with Air Temperature?

