

# **Get ACTIVE: How to Engage Your Students in the 21st Century**

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# Icebreaker: 2-Minute Mixer



- Pair up with someone you don't know.
- Chat for 2 minutes:
  - Introduce yourselves to each other (name, department, etc).
  - Describe yourself using 3 words.
- When 2 minutes are up introduce your partner by:
  - giving **name** and **department** of your partner
  - sharing the **3 descriptive words** you have learned about your partner during the mixer

# Expectations

- Hands-on, class-like, mirroring of AL class
- Brief introduction to AL; short activity
- Activity example 1
- Activity example 2
- Resources
- Action plan
- Exit reflection

# What is Active Learning?

**ENGAGING:** students are engaged in their own learning.

**DOING:** students do something other than listen to a lecture, take notes, or follow instructions.

**CONSTRUCTING:** students construct new knowledge and build new skills

# Why Active Learning?

- Enhance **learning** with active participation
- Enhance **retention** of information
- Improve **grades**
- Improve class **participation**
- Improve **motivation**

# How is Active Learning Practiced?

- Variety of methods
- Common feature: *all students* need to *do* something in class

## Examples of AL Techniques

- Personal reflections
- Group problem solving
- Personal response system (clickers)
- Think-pair-share
- Peer instruction
- Debates
- Designing and conducting experiments
- Writing questions
- Decision making
- Concept mapping

# Passive vs. Active Teaching (Think-Pair-Share)

How does soil moisture affects plant performance?  
What is your prediction? Why do you predict this?

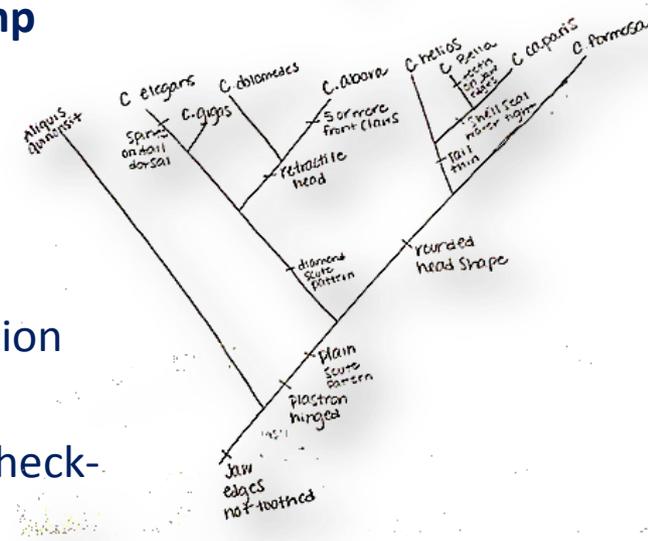
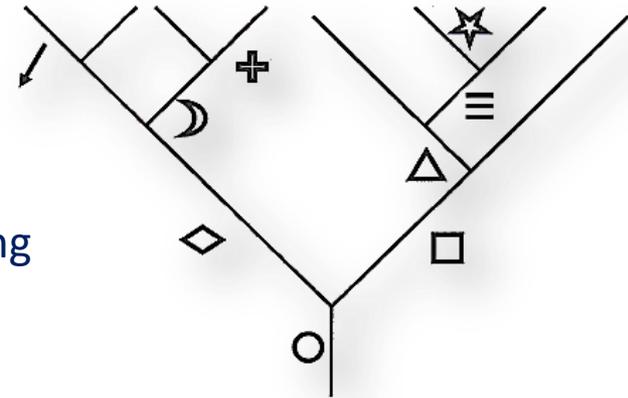
1. Working individually, examine the data. Do you see any patterns related to your prediction? (2 min)
2. Discuss your findings with another participant. (2 min)

Habitat	Biomass* (g)	Soil Moisture (%)
Harper Creek 1	85.7	13.7
Harper Creek 2	153.5	11.0
Harper Creek 3	50.8	15.6
Olivet	22.2	14.1
Plainwell	46.2	7.5
Comstock	95.9	11.6
Delton Kellogg 1	223.9	16.6
Delton Kellogg 2	84.8	13.4
Gull Lake 1	81.1	22.3
Gull Lake 2	87.9	15.1
Lawton 1	128.7	9.7
Lawton 2	85.8	18.7
Plainwell 1	8.7	7.1
Plainwell 2	9.9	9.8

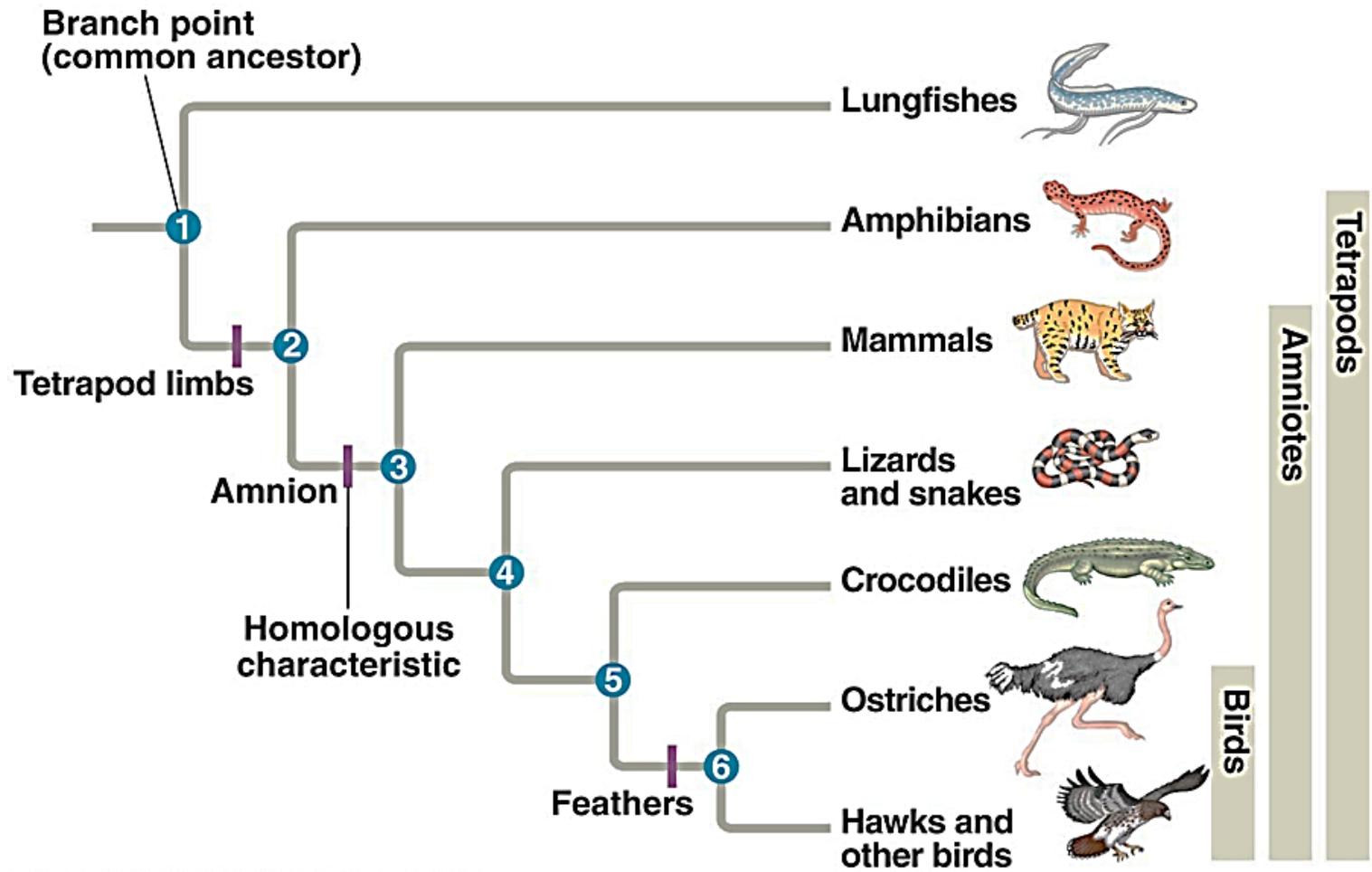
\* Biologically produced matter

# Activity 1: Great Clade Race

1. Race through woods with **7 runners** (A-G)
2. **Single starting point**; but runners chose **different paths**
3. Runners crossed the **finish line at different places** depending on the route they followed
4. Runners received **stamps** as they passed **check in stations**
5. **Recreate the route of each runner** by referring to the **stamp card** of each runner; place the stamps in their appropriate places along the routes
6. Rules:
  - Runners begin with a blank card
  - Runners must collect a stamp from each check-in station they pass
  - Each check-in station uses only one stamp and no 2 check-in stations use the same stamp
  - The path always forks into two, and paths never cross or rejoin







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# Designing AL lessons

# **Big Ideas explored in General Chemistry I (NYA)**

- **Idea #1 Matter is made of atoms**
- **Idea #2 Elements display periodicity**
- **Idea #3 Chemical bonds form when electrons pair**
- **Idea #4 Molecular shape is a crucial feature in chemistry**
- **Idea #5 There are residual forces between molecules**
- **Idea #6 Energy is conserved**

# **Big Ideas introduced in The Chemistry of Solutions (NYB)**

- **Idea #7 Entropy tends to increase**
- **Idea #8 There are barriers to reaction**
- **Idea #9 There are only four types of reaction**

Organic Chemistry I (202-HTJ) explores all nine big ideas.



# Six common entry points to create AL lessons

- Content standards
- Real-world applications
- Key resource or favorite activity
- Important skill
- Key assessment
- Existing unit

# Activity 2: Uncovering the Big Ideas

1. Design an AL Lesson for your course.
2. Think about the big idea emphasized by this activity
3. Share your insights with the other group members



# Resources

# Active Learning



# Exit Reflection

Working individually, answer the following question (1-3 min):

**How do active learning strategies engage students and help transform your class into a student-centered one?**