**Primary Literature Analysis Guidelines**

**PURPOSE:** The purpose of this literature analysis is to help the students understand the structure of a scientific paper and therefore help them to properly structure their own written report.

**GUIDELINES**: Each student will analyze **two primary literature articles** of their choosing. For each:

1. **Print the abstract** of the article and attach it to the analysis.
2. **Create a concept map/flow chart** of each section of the article that outlines the ideas presented and in the order in which they are presented. This is meant to be a summary of the structure to show how each section is organized to provide a clear line of thought and “story” throughout the article.
3. **A brief paragraph** explaining the structure of each section of the article, immediately following each concept map/flow chart. For example, how did they progress through the material in the Introduction so that you were provided with enough background information but also lead to the specific objective of the study?
4. **An overall summary paragraph** providing reflection on how the article is structured and how different aspects of that structure help or hinder in your ability to follow the story or understand the study. For example, if the study incorporated multiple experimental components, did the authors always present the information about these components in the same order throughout each section of the article?

**Example Introduction Section Flow Chart from the article** “The fungal fastlane: Common mycorrhizal networks extend bioactive zones of allelochemicals in soils” (Barto *et al.* 2011, *PLoS One*)

**BIG IDEA:** Allelopathy defined, conditions that affect it explained, problem with using synthetic soils in lab to study complex interactions in natural soils.

**Knowledge gap identified-** mycorrhizal fungi are sometimes targeted, but unknown how they might transport allelochemicals

Identify **their specific focus** and proposed mechanism of chemical transport via mycorrhizal network

**What is known:** Summary of what is known about mycorrhizal transport of water, nutrients, etc.

Known to transport water, nutrients. Might transport chemical signals

How this interaction could transport allelochemicals and prevent microbial degradation of those chemicals

Likely increase flow rates of chemicals between source and target

**Problem with previous** **experiments**- lack ability to evaluate fully formed mycorrhizal networks in short term greenhouse experiments

**Objective of current study**- in longer greenhouse experiment determine if networks are important to allelochemical transport between plants

Fully develop networks in experimental plots, or disrupted networks

Apply herbicidal chemical as model, then use actual plant-released allelopathic compounds.

Brief summary of findings & conclusions- network provided direct path for chemical transport, inhibited neighboring plants. Important overlooked component in allelopathy.