

### Level 3-5:

**Goal:** To help students who are beginning to tie the evidence to evidence and evidence to a claim when they write, to enhancing this strategy and focus on attending to being convincing.

**Teaching Strategy:** Critique poorly constructed arguments in order to focus on reasoning and being convincing; writing a convincing argument using the strategies and skills highlighted in the lesson.

**Works Best With:** Individuals with some small and whole group discussion supporting the learning.

### Details:

#### Preparation:

- If your students haven't participated in the writing lessons for reasoning Levels 0-2, prepare at least a modified version of these lessons in order to familiarize them with the Reasoning Tool and its purpose. You may want to go through the projections provided in that lesson at the start of today's lesson, for instance.
- Prepare to project or otherwise show the important documents for this lesson.
- Prepare to write the elements of Argument B (see lesson below) on the board: *Argument: Offers definitions when needed; is presented in a logical way/doesn't skip around; uses transition words and phrases*
- Create a list of potential transition words and phrases on chart paper. You may want to keep this up and add to them over time. A start could be: *Therefore, in addition, first, second, third, also, next, however, this means, finally, one example of this, etc.*
- Although this lesson introduces content in a simple form, you may want to spend some time preparing students to think about aspects of space science such as orbits and stars. In addition, you may want to discuss what scientists consider the prerequisites for life (as we know it) to exist – for example, the presence of liquid water and carbon.

#### Teaching:

1. Introduce the topic. Tell students that in order to practice making convincing arguments, you will have time think about an interesting science discovery. They will read about a new planet, Kepler 186f, that might have the necessary prerequisites to support life! Using this interesting finding, they will practice unpacking the information they will need to make a convincing argument using the Reasoning Tool; finally they will write an argument.
2. Distribute the article, ***Life on Another Planet?*** And have students read, annotating and highlighting important information as they do.

3. Briefly discuss important findings from the article.
4. Project the **Kepler 186f Reasoning Tool** example. Discuss how, in this case, the 'Therefore' column is a claim and the rest of the rows are set up to offer support for that claim (note that this is the most common use of the Reasoning Tool, but that it can be used in other ways as well).
5. Discuss first row as an example. Model how you read should read across in order to check that you have written something logical in the middle column, something that actually connects the evidence to the claim in important ways.
6. Have students complete the last two rows. Circulate and offer support as necessary.
7. Project the **Kepler 186f Reasoning Tool** again. Fill out the middle column with suggestions from students.
8. Discuss limitations of the Reasoning Tool. Praise the usefulness of the Reasoning Tool – it reminds you to thoroughly explain your thinking and the connections you need to make if you want to present a strong and convincing case. However, unless you understand how the tool is used, someone reading it might not be very convinced by what you put in the tool. In addition, the tool is missing many important connective words that good writers use to make their arguments clear and convincing.
9. Project poorly written and strongly written argument from the **Example Arguments: Ecosystems** sheet.
  - a. Focus on weaknesses in Argument A. Cover Argument B and Read Argument A with the class. Discuss how or why this is an unclear and unconvincing argument (many important terms aren't defined; it skips around; it is difficult to follow; not all the sentences work together to support the claim; etc).
  - b. Focus on strengths in argument B. Cover Argument A and read Argument B. Discuss strengths with class. Note that a. the author is careful to explain terms at the start; b. the author thinks about how to logically present his thinking and presents a logical case – here is what an ecosystem is -- here is how or why our pond is an ecosystem/fits this definition. Write on the board:
    - i. Argument B
      1. Offers definitions when needed
      2. is presented in a logical way/doesn't skip around
  - c. Focus on Transition words and phrases in Argument B. Indicate the bolded words and phrases. Explain that good writers who want to be convincing pay careful attention to the words they use. They know that using the right words makes it a lot easier for the people reading their arguments to follow what they are saying. Using words and phrases like these in this argument help to make the writing clear. Read over 2-3 sentences with and without these words included in order to provide students with an example of how helpful including these kinds of words can be to the reader.
    1. Write: uses transition words and phrases on the board

10. Project **Kepler 186f Reasoning Tool** again. Explain that you would now like them to create a written argument from the information on this tool.
  - a. Note that the tool does not include definitions. Ask students for some definitions that might be helpful to add – for instance, if they want to use the term ‘Goldilocks Zone’ they will likely want to define this. They can assume some knowledge of their reader and so do not need to define everything. For example, words like ‘planet’ ‘star’ and ‘orbit’ are probably well-known enough that they don’t need to be defined.
  - b. Note that the tool does not provide the logical flow they will want to provide in a written argument in order to make a strong case. Briefly discuss with students what order they would want to put the information from the tool in, in order to make a strong convincing and logical argument.
  - c. Note that the tool does not include Transition words. Refer students to the chart paper list of transition words you created before class. Encourage students to use these when they write.
11. Discuss the importance of audience and keeping the audience in mind as you write. Explain that one important strategy good writers use is to think about the audience – the potential person who will read your argument – when you are writing. When you do this, you are paying attention to the places where you need to be clear. You are paying attention to how logical you are being when you are making your argument. This helps to ensure that your argument will be as strong and convincing as it can be. Encourage students to consider their potential audience when they write.
12. Students write. Circulate and offer support to individuals as needed. Use the idea of ‘potential audience’ when you discuss their writing and encourage them to think about whether or not someone reading this piece would understand the points they are trying to make.

**Resources:**

- ***Life on Another Planet?***
- **Kepler 186f Reasoning Tool**
- **Example Arguments: Ecosystems**

**Why This Matters:** Students can learn to include evidence in their arguments relatively early in their work with argumentation, but often have difficulty putting together logical, convincing arguments. This skill takes a great deal of time to gain for many students. Breaking apart an argument then helping students to see how their own writing can have an impact on how it is perceived (as strong and convincing or not) is an important step for students learning to write strong arguments.

