Backwards Summaries

Help students have "Aha!" moments and maximize learning by simultaneously reversing the expected order -- asking students to explore ideas both from the basic level to the most complex level *and* from the most complex level back to the basics. This is one of the tenets of constructivism.

The idea of backwards summaries is to have students **start with the final product**, the "big picture" view, and then go on to **explore the smaller components** and their meanings, while also studying those components and working toward the big picture.

Basic Sequence: Give students the final version of something explained, performed, or presented well. Then have them comment on the criteria for overall success, the effects of specific components on the product's quality or personal achievement, or the early steps in the product's development or personal achievement. Examples:

- "Make the web from which this paragraph came."
- "Here's the completed **math solution**. What would happen if I had never considered the absolute value of *x?"*
- "Here's the final French **translation** of this sentence. What if I had not checked the tense of each verb?"
- "Here's a well-constructed **concerto**. What happens if I remove the oboe's eight measures on page 4?"
- "Here's a well-done **lab procedure**. What happens if I don't use distilled water?"

When students bring together discrete pieces to create a new whole, such analysis will illuminate more about how to create something than will synthesis experiences alone. Students need analysis and synthesis, induction and deduction, and learning forwards and backwards.

Variations and Extended Applications Students respond well to both inductive and deductive approaches, even if presented at the same time. **Inductive lessons** usually move from the **specific to the general**, while **deductive lessons** begin with the **general and move to the specific**. One of the big differences between the two is the differing foundations for their claims: **inductive reasoning relies on observations** and experiences while **deductive reasoning relies on rules**, laws, principles, and accepted theories. Examples:

- ***Inductive reasoning:*** If you notice that it hurts every time a bee stings you, you can assume it will hurt in the future when a bee stings you.
- ***Deductive reasoning:*** If you are aware that when a bee stings you, it injects a small irritant (poison) into you that causes pain, you can conclude it will hurt you when a bee stings you in the future.

In backwards summaries, teachers can provide both experiences: experiential foundations upon which to draw conclusions, as well as the established big picture concepts, principles, and rules from with which we cal reasonably predict what will happen or make inferences. Students need both inductive and deductive experiences to fully grasp many concepts they are taught.