Dr. Hieb's Description of Demonstrating Application of the Critical Thinking Model for His Students:

The following is an example Dr. Hieb works in one of the course units. In his own words:

"Several satellites in the earth's equatorial plane have nearly circular orbits whose periods are the same as the earth's rotational period. These geosynchronous orbits keep the satellite over the same spot on the earth's surface. A) Find approximately the semimajor axis of a geosynchronous orbit; b) find the height of this orbit above the earth's surface."

The math to solve this is not complicated, so he focused on the critical thinking process when he worked the problem.

Text in Red
Indicates the infusion of the **Elements of Reasoning**

Text in Blue
Indicates the infusion of the **Intellectual Standards**

Text in Green
Indicates the infusion of the **Intellectual Traits**

[Bracketed Text]
Indicates the indirect use of critical thinking ***[Elements]***, ***[Standards]***, or ***[Traits]***

View more about the Paul-Elder Framework of Critical Thinking

"I start by asking out loud, to myself, "what things do I know [Information] which are relevant to solving this problem?""Well I know that Kepler's third law[Concept] relates a satellite's period to its semimajor axis [Information]." So I then write down Kepler's third law and solve for a (semimajor axis), and substitute established values such as universal gravitational constant and the mass of the earth [Information]. "We need T, the orbital period of the satellite, to find a, its semimajor axis, can we infer this from information that is given?" "Yes, using earth's rotational period."... For the second part, I sketch the problem pointing out that this is often useful in thinking about problems."