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## Redox and the Goddess of Beauty Demonstration Worksheet

## **Discussion Questions**

1. Describe what happened in this demonstration.

2. What is an oxidation-reduction reaction?

3. The initial yellow solution contains VO<sup>2+</sup> ions, which include vanadium(V). In the first part of this demonstration, vanadium(V) was reduced stepwise by zinc, to vanadium(IV), then vanadium(III), and then vanadium(II). Write a balanced chemical equation for the each of the steps in this reaction. *Hint:* Include hydrogen ions in the first two reactions.)

a. V(V) to V(IV)

b. V(IV) to V(III)

c.V(III) to V(II)

4. VO<sup>2+</sup> ions are yellow, while VO<sup>2+</sup> ions are blue. Knowing this, explain the green color that was generated when the ammonium metavanadate solution was poured over the zinc.

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