

Anticipation Guide

1. Read the following statements related to a new product, rewritable paper, which uses light, instead of ink.
2. Consider what you know or have heard about each statement. Check the statements you think might be supported by scientific evidence.
3. Talk with your group members about why you made your choices. Be prepared to share any information you know or have heard about this topic as your group discusses the following six statements.
4. Read the text, *Rewritable Paper: Prints with light, not ink*.
5. Return to the statements below. Indicate which statements are *confirmed*, *rejected* or *elaborated* on in the text.
6. In the boxes below the statements, cite evidence from the text that either supports or contradicts each statement.
7. For statements that can be rejected or are contradicted by the text, rewrite them in a way that could be supported by the author.
8. Use evidence from the text to write an argument either supporting or opposing this new product.

1. Traditional paper is not really an environmental problem. *Rejected*

"A new paper design could eliminate tons of landfill waste." (title caption)
"this new technology could cut down on tons of waste" (para 1)
"Lower paper use could help preserve forests. Yin also argues that using less paper not only could reduce the amount of trash from printed materials, but also the amount of chemical pollutants." (para 20)

2. Reusable paper would save money over using regular paper. *Confirmed*

"this new technology could... save people tons of money." (para 1)
"Nonetheless, the cost savings and environmental benefits of rewritable paper could be "enormous," Yin says." (para 20)

3. In redox reactions, electrons are transferred between molecules. *Elaborated*

"Redox is short for **re**duction and **ox**idation." (para 2)
"Oxidation steals one or more electrons from a molecule." (para 3)
"Reduction is the opposite of oxidation. It adds one or more electrons." (para 4)

4. The same scientific principles apply to dyes and inks as to other chemicals undergoing reactions. *Elaborated*

"When dye in the new paper is oxidized, it appears blue, red or green." (para 5)
"When the dye on some parts is reduced, color on those areas disappears. Controlling these two reactions makes it possible to print on, erase and reuse the new paper." (para 5)
"It does explore some basic science. But beyond that, he explains, it puts science principles to work." (para 17)

5. Chemical reactions occur at the same rate and can't be sped up or slowed down. *Rejected*

"Special cellulose in the paper slows that erasure." (para 13)
"Heating speeds the erasure time. At the right temperature, oxidation can return the entire paper to

its solid color in five minutes or less." (para 14)

6. Reusable paper should completely replace traditional paper. *Rejected*

"The paper can work with blue, green or red dye. But full color printing is not yet practical." (para 18)

"Another issue is that someone couldn't read an article and then decide to save it on the new paper. The whole paper still would darken in two days or so." (para 19)