

Presenting

Large Group  
Discussion

annotate "We Must Protect U.S. Investment in Scientific  
Mark B. Boslough (Remember to record these annotations.  
em in your final portfolio.)  
reading the prompt, practice forming a Barclay paragraph  
mulaRevisedFromCrippsv2.docx) connecting a quote from  
a quote from either Jonah Lehrer or Yo Yo Ma.

Growth Mindset

How to Use an Apostrophe

More on Subordinate Conjunctions

TED ed: A Comma Story

## Resources

Digispace and Hours

Digispace Tutorials—Themes, Posts vs. Pages,  
and More!

Help with Inserting Images into Posts and Pages

How To Make an MLA Works Cited Page in  
Word



MacBook Pro

the Future of Science...Is Art? | SEEDMAGAZINE.COM

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# TO ANSWER OUR MOST FUNDAMENTAL QUESTIONS, SCIENCE NEEDS TO FIND A PLACE FOR THE ARTS.

The Future of Science...Is Art?

FOURTH CULTURE / BY JONAH LEHRER /

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In the early 1920s, Niels Bohr was struggling to reimagine the structure of matter. Previous generations of physicists had thought the inner space of an atom looked like a miniature solar system with the atomic nucleus as the sun and the whirling electrons as planets in orbit. This was the classical model.

— using Art to describe science

blur of brushstrokes that only made sense once you stared at it. The art that looked so strange was actually telling the truth.

anticipated, artistically, the physiological properties of the cells of an area called V5, which are selectively responsive to motion and its direction. Viewed from a distance, the separate pieces of the mobile appear as static spots of varying sizes. But as the pieces move in different directions, each one stimulates only the category of cell that is selectively responsive to the direction in which the spot is moving. — Semir Zeki, Neuroscientist, University College London © Christie's Images/Corbis

It's hard to believe that a work of abstract art might have actually affected the history of science. Cubism seems to have nothing in common with modern physics. When we think about the scientific process, a

[http://www.nature.com/content/article/the\\_future\\_of\\_science\\_is\\_art/](http://www.nature.com/content/article/the_future_of_science_is_art/)

This is true.

many people  
would not  
know

that there is something like  
this

- Discuss Lehrer Small Group/Large Group
- Small Group Glossing and Discussion
- Prompt 2

• For next class:

- Print, Read, and Annotate "We Must Protect U.S. Investment in Scientific Knowledge" by Mark B. Boslough (Remember to record these annotations. You will need them in your final portfolio.)

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More on SU  
TED ed: A Co

ture of Science...Is Art? § SEEDMAGAZINE.COM

specific vocabulary comes to mind: objectivity, experiments, facts. In the passive tense of the scientific paper, we imagine a perfect reflection of the real world. Paintings can be profound, but they are always pretend.

This view of science as the sole mediator of everything depends upon one unstated assumption: While art cycles with the fashions, scientific knowledge is a linear ascent. The history of science is supposed to obey a simple equation: Time plus data equals understanding. One day, we believe, science will solve everything.

science has proven to be a little more complicated. The more we know

it's interesting to think that art is circular and science is a line. I like this statement.

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SCALE  
DEVELOPMENT  
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COGNITION  
ENERGY  
DATA

TRUTH  
DECISION MAKING  
MEDICINE  
DESIGN  
FOOD

BIOTECHNOLOGY  
COOPERATION  
SOCIAL SCIENCE  
DISEASE

INFORMATION  
GOVERNANCE  
COMPLEXITY

ENVIRONMENT  
FLUIDITY  
SYSTEMS  
LEADERSHIP  
GLOBAL RESET  
RISK  
BIAS  
COMPETITION

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But Bohr had spent time analyzing the radiation emitted by electrons, and he realized science needed a new metaphor. The behavior of electrons seemed to defy every conventional explanation. As Bohr said, "When it comes to atoms, language can be only as in poetry." Ordinary words couldn't capture the data.

Bohr had long been fascinated by cubist paintings. As the intellectual historian Art Miller notes, he later filled his study with abstract still lifes and enjoyed explaining interpretation of the art to visitors. For Bohr, the allure of cubism was that it shrouded certainty of the object. The art revealed the fissures in everything, turning the solid matter into a surreal blur.

Art  
designed  
used  
and  
to

Bohr's discerning conviction was that the invisible world of the electron was essentially a cubist world. By 1923, de Broglie had already determined that electrons could exist as either particles or waves. What Bohr maintained was that the form they took depended

