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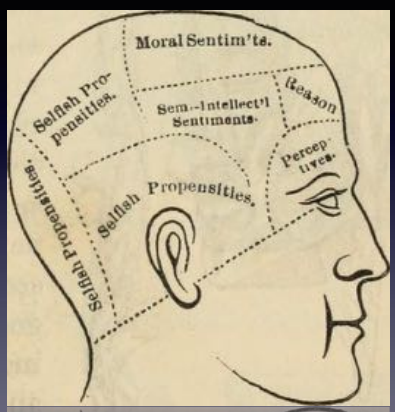
A learning experience that models the approach

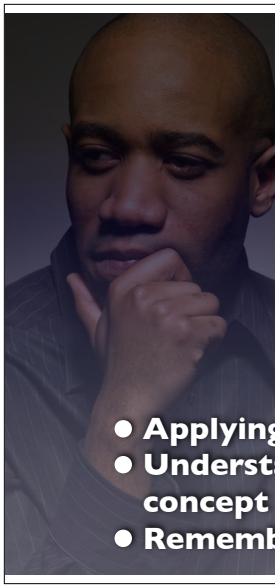
Agenda

1. The thinking
2. The students
3. From lecture to VTS
4. Keys for teaching with VTS



Let's TALK about THINKING

What does "analyze" mean to a middle schooler?



Higher order thinking

- **Creating - generating new combinations**
- **Evaluating - justifying a decision or choice**
- **Analyzing - discovering patterns**

Lower order thinking

- **Applying - using info in a new setting**
- **Understanding - explaining idea or concept**
- **Remembering - recalling information**

SECTION 3

The Cell Cycle

In the time that it takes you to read this sentence, your body will have made millions of new cells! Making new cells allows you to grow and replace cells that have died.

READING WARM-UP

Objectives

- Explain how cells produce more cells.
- Describe the process of mitosis.
- Explain how cell division differs in animals and plants.

Terms to Learn

cell cycle
chromosome
homologous chromosomes
mitosis
cytokinesis

READING STRATEGY

Paired Summarizing Read this section silently. In pairs, take turns summarizing the material. Stop to discuss ideas that seem confusing.

The environment in your stomach is so acidic that the cells lining your stomach must be replaced every few days. Other cells are replaced less often, but your body is constantly making new cells.

The Life of a Cell

As you grow, you pass through different stages in life. Your cells also pass through different stages in their life cycle. The life cycle of a cell is called the **cell cycle.**

The cell cycle begins when the cell is formed and ends when the cell divides and forms new cells. Before a cell divides, it must make a copy of its deoxyribonucleic acid (DNA). DNA is the hereditary material that controls all cell activities, including the making of new cells. The DNA of a cell is organized into structures called **chromosomes.** Copying chromosomes ensures that each new cell will be an exact copy of its parent cell. How does a cell make more cells? It depends on whether the cell is prokaryotic (with no nucleus) or eukaryotic (with a nucleus).

Making More Prokaryotic Cells

Prokaryotic cells are less complex than eukaryotic cells are. Bacteria, which are prokaryotes, have ribosomes and a single, circular DNA molecule but don't have membrane-enclosed organelles. Cell division in bacteria is called *binary fission*, which means "splitting into two parts." Binary fission results in two cells that each contain one copy of the circle of DNA. A few of the bacteria in **Figure 1** are undergoing binary fission.

cell cycle the life cycle of a cell

chromosome in a eukaryotic cell, one of the structures in the nucleus that are made up of DNA and proteins; in a prokaryotic cell, the main ring of DNA

Figure 1 *Bacteria reproduce by binary fission.*

42 Chapter 2

"Summarize text in your own words."

Higher or lower order thinking?

Students can create and share higher-order summaries

Curate padlet

Animate Toontastic

Publish BOOK CREATOR

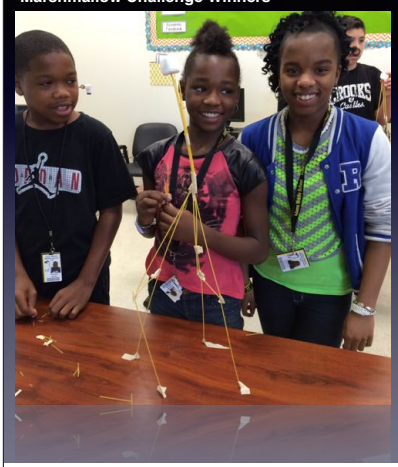
Learning is relevant when the student:

1. understands how this information or skill has some **application in their life.**
2. has an opportunity to **follow their own process rather than just learn "the facts."**
3. is not just learning content and skills, but is **reflecting on their work and their**

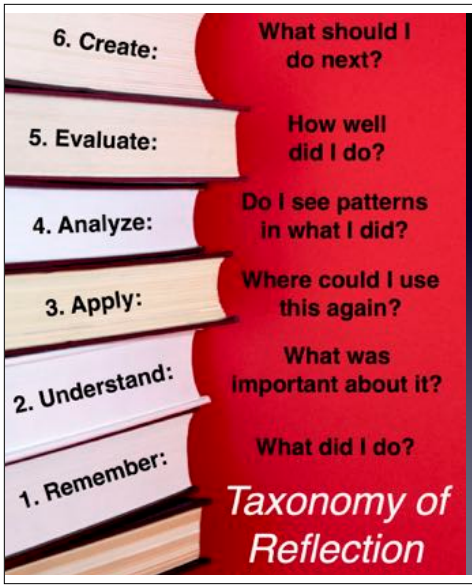
Learning is personalized when students can make choices:

Content - what knowledge and skills will be studied?
Process - what materials, procedures, etc will be used?
Product - what will students produce to demonstrate their learning?
Evaluation - how will the learning be assessed?

Marshmallow Challenge Winners



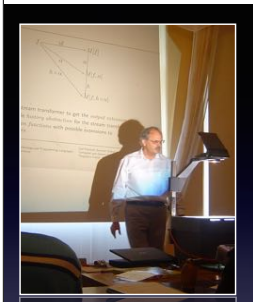
CHOICE provokes student reflection



My Taxonomy of Reflection

bit.ly/tax-re

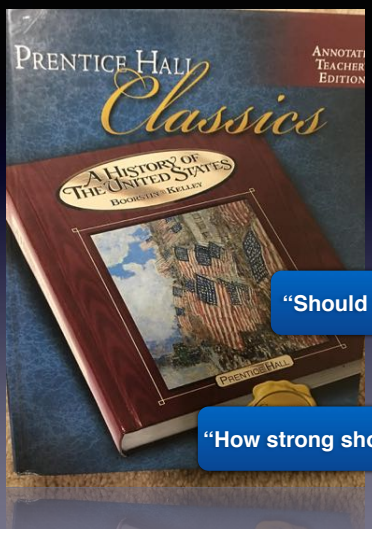
With prompts for
students
teachers
ed leaders



From lecture to VTS

3 keys to how I learned to teach history with visual documents

1. Use the standards / curriculum to craft an **essential question** that's worth answering



Essential questions

"12 Great Debates in American History"

"Should the Constitution be ratified?"

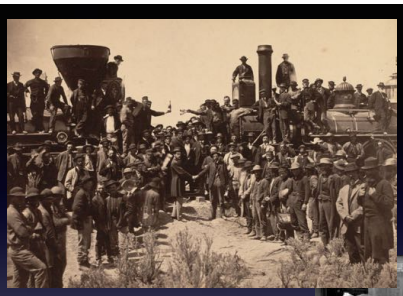
Became …

"How strong should the central government be?"

Essential questions

1. Timeless, thought-provoking, open-ended.
2. Calls for higher-order thinking, rather than a "correct" answer.
3. Sparks discussion and debate. Requires support and justification.

2. Choose documents that students can **interpret with limited background knowledge**

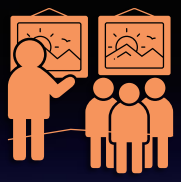


< This is iconic

Students can "read" this image without much background knowledge>

Student can use street scene to explore the history of transportation in America

3. Use scaffolding questions to **guide the students in a close reading** of the documents that will **help them answer the essential question**



Steps for close reading visual documents

1. **What does it say?**
2. **How does it say it?**
3. **What's it mean to me?**

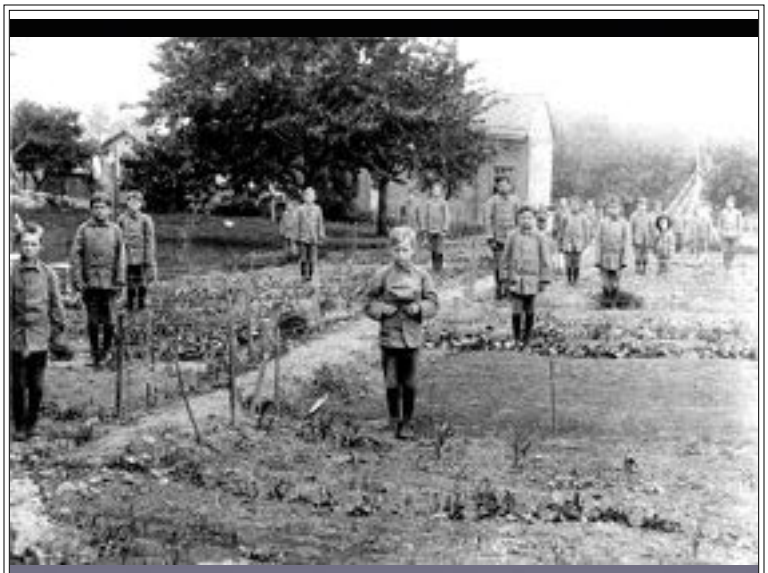
#1: What does it say?

- Identify the key ideas.
- What claims does the author make?
- What evidence does the author use to support those claims?

Move from identifying details to inference

Detail people, objects, and activities.

Move to inference supported by the details.



Guide the viewer to inference

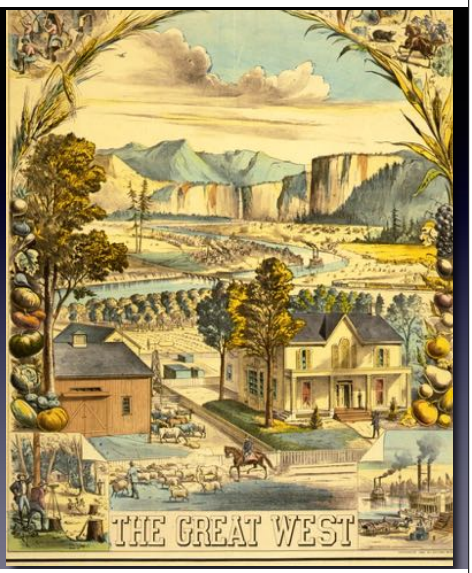
1. What's going on in this picture?
2. What do you see what makes you say that?
3. What more can we find?

#2: How does it say it?

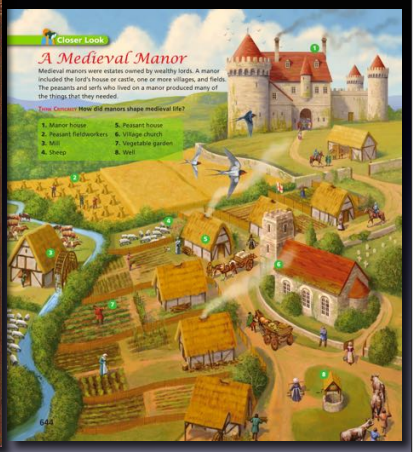
- How is information presented?
- Who created the document?
- What's their point of view / purpose?
- How does it reflect its historic time period?

What's the author's point of view?

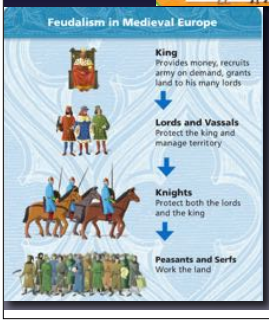
Cite evidence in the text



The medieval manor



"Grimani Breviary: The Month of October" Unknown Flemish Artist 1490-1510



What is the central idea about the social structure of each society?

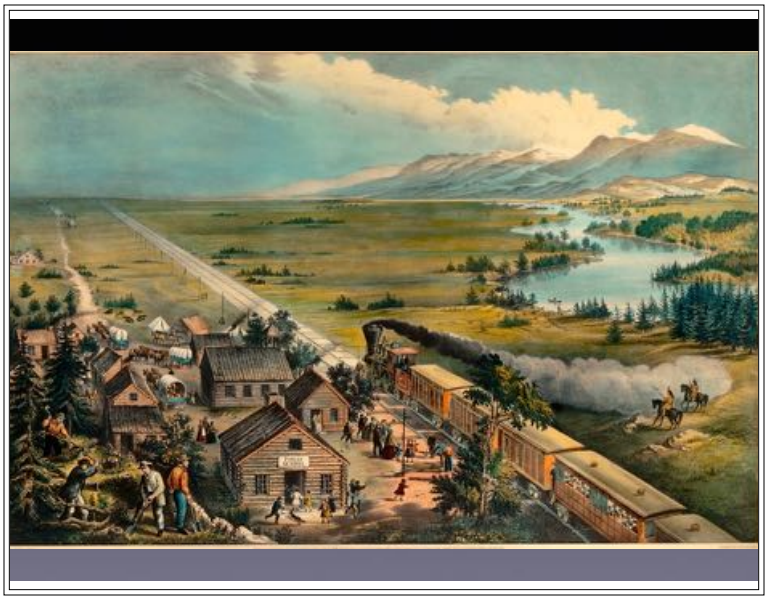
Cite specific elements of the illustration support that idea.

#3: What's it mean to me?

- Distinguish among fact, opinion, and reasoned judgment in a text.
- Compare to other sources / media / genres.
- How it connects to your life and views.

What's the artist's point of view?

Positive
Negative
Neutral?



Smoke once meant "progress"

Corporate Brochure 1924

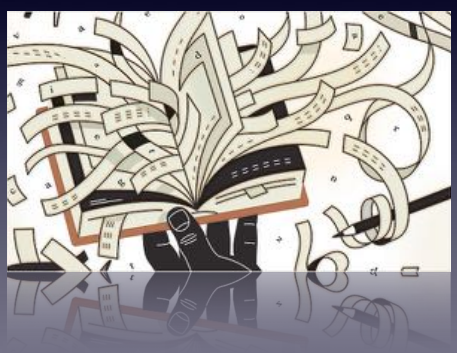
The tribes were warlike and bloodthirsty, jealous of each other ...they claimed land for their hunting grounds, but their claims all conflicted with one another... they are always willing to sell land to which they have the vaguest title.

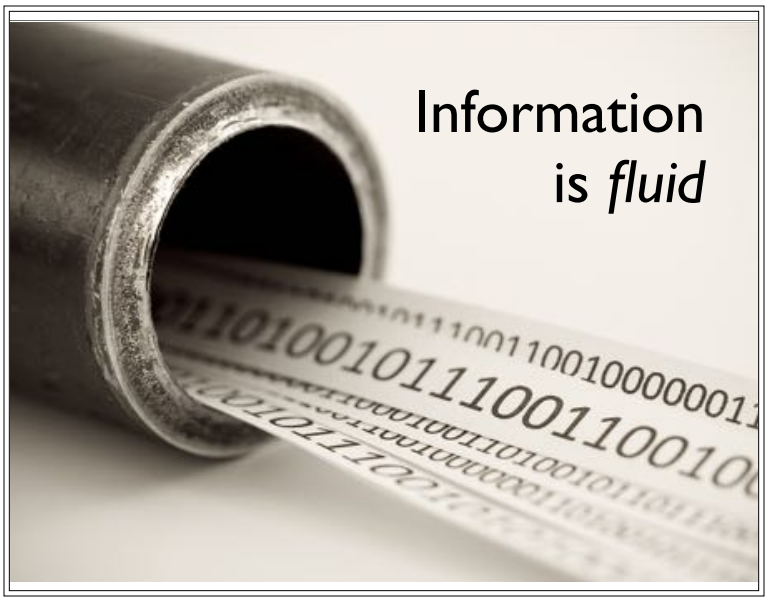
[Can we] consider the dozen squalid savages who hunted at long intervals over a territory of 1000 square miles as owning it out-right?

Teddy Roosevelt on Native Americans

Old School

Information is *fragmented*





Challenge for teachers:

What happens in schools, now that life's become an open book test?

Who is using the technology?

How are students using technology?

Create

Consume

Is BYOD leveraged as an asset or considered a distraction?

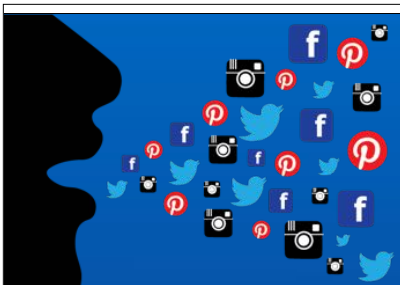
Sharing information is easy - the tough part is assimilation

Idea: We need to be teaching a new literacy

1. Find
2. Decode
3. Critically evaluate information

4. Curate
5. Store
6. Responsibly share information

Critically evaluate + responsibly share



Social media promised us a voice for all

Instead we got troll farms and cyberbullies

Learning in the digital age

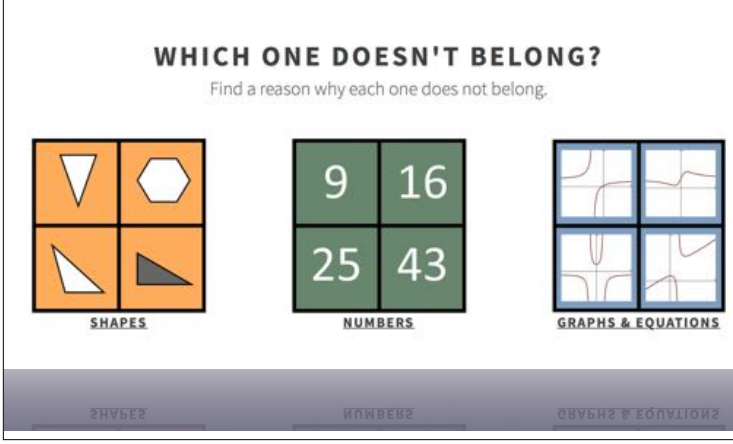
Task - Are students asked to do ***genuine*** higher order thinking?

Interaction - Does the learning include a social component?

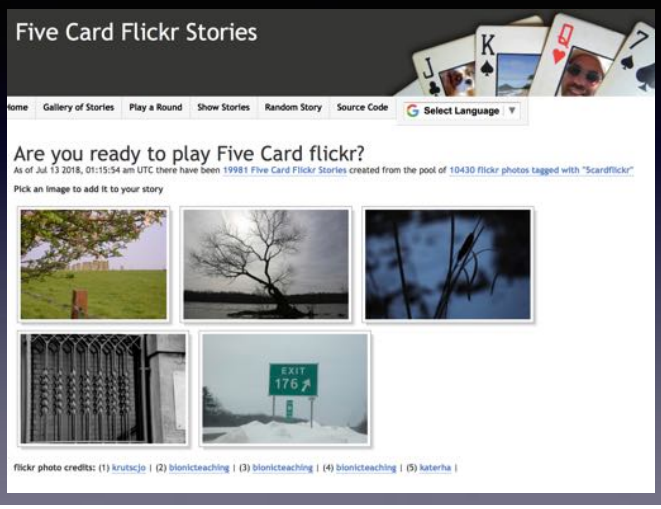
Choice - Are students exploring their own options for content, process, product and assessment?

Some favorite tech tools

wodb.ca



5card.cogdogblog.com



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Microsoft Sway

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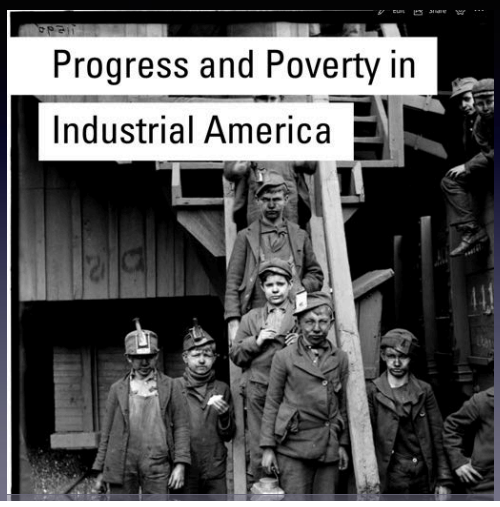

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