engaging teens in a 21st century classroom

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we’ll use an audience response system

Foundations of engagement

Kinds of thinking
Relevance

 Courtesy of:
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What is critical thinking?

Critical thinking = Higher level Bloom’s Taxonomy
- Creating - generating new ideas
- Evaluating - justifying a decision or choice
- Analyzing - breaking into component parts
- Applying - using information in a new setting
- Understanding - explaining idea or concept
- Remembering - recalling information

Creating
- A new combination of old elements

If I had a Brontosaurus
I would use him as a school bus

If I had a Stegosaurus
I would use him as a ladder
What is relevance?

Learning is relevant when the student:

- understands how this information or skill has some application in their life.
- has an opportunity to follow their own process rather than just learn “the facts.”
- is not just learning content and skills, but is reflecting on their work and their progress as learners.

Justin, a second grader, talks about math

Math is when you add or subtract numbers. And your teacher will make sure you have the right answer.

Question: A cruise ship carries 200 passengers and crew. Each life boat carries 30 people. How many lifeboats will the ship need?

Almost one-third of the 8th graders who took the NAEP math test answered “6 remainder 20”
Move students toward greater relevance

- Using skills and knowledge in routine school setting.
- Work as directed by the teacher.
- Using skills and knowledge for myself in the real world.
- Figuring out my own approaches.
- Evaluating my progress

Strategies to support student engagement

- Summarizing
- Comparing
- Reflecting


Support literacy
Raise level rigor
Greater relevance

Summarizing
Evaluating what’s important.
Sharing what you’ve learned.
Summarizing builds content knowledge.

**Marzano’s research** shows student use of summarizing skills results in a 34-percentile gain in student performance.

**Group 1:**
Teacher lectures on the essential characteristics of mammals

**Group 2:**
Teacher lectures, then students do a summarizing exercise on the essential characteristics of mammals

34% gain in content mastery

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**Marzano: Classroom Instruction that Works**

**Six essential summarizing skills**

- **Identify details** – can you identify key symbols, words, visual elements?
- **Recognizing context** – where is this taking place, time period, who’s involved?
- **Identify relationships** – who are these people, what is their relationship to one another?

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**Continued - Summarizing skills**

- **Identify opinions** – is there a point of view expressed in the source information?
- **Make predictions** – based on the information, what will happen next?
- **Infer meaning** – is there meaning that can be extracted from what’s between the lines?

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**Move from identifying details to inference**

Form an overall impression of the image and then examine individual items.

Next, divide the image into sections and study each to see what new details become visible.

List people, objects, and activities in the image
Elements for 

Allow students to make their own judgments about what’s important (instead of just repeating the details the teacher highlights).

Students need to be able to share what they’ve learned with an audience other than the teacher.

Elements for teaching summarizing

Explaining what you’ve learned is telling a story using a narrative patterns.

Student may need explicit training about narrative patterns.

Recognizing how information is organized helps to analyze original work and summarize it for their audience.
Narrative Pattern | Description | Cue Words
--- | --- | ---
Description | Describes a topic by listing characteristics, features, and examples | for example, characteristics are
Comparison | Explains how two or more things are alike and/or how they are different. | different; in contrast; alike; same as; on the other hand
Cause / effect | Lists one or more causes and the resulting effect or effects. | reasons why; if...then; as a result; therefore; because
Problem / Solution | States a problem and lists one or more solutions for the problem. | problem is; dilemma is; puzzle is solved; question... answer
Sequence | Lists items or events in numerical or chronological order. | first, second, third; next; then; finally

Description: listing characteristics, features, and examples
Cause / Effect: one or more causes and the resulting effect or effects

Comparing builds content knowledge
Marzano's research shows student use of comparing skills results in a 45-percentile gain in student performance.

Group 1: Teacher lectures on the essential characteristics of mammals
Group 2: Teacher lectures, then students compare the essential characteristics of mammals to birds

Marzano: Classroom Instruction that Works
Do you give students chances to develop their comparative models?

- They could select items to compare from a teacher-produced list.
- They could independently decide what to compare.
- Can include some combination of selecting both the items and/or characteristics.

How is the comparison useful? What do you learn from it?

Elements for teaching comparing and classifying

- We must ask students to develop the comparison, not just learn and repeat the model that we present to them.
- Student must share what they learned from the comparison.

Students can do comparisons in every class.

What’s more important in sports … strength or agility?

"When it comes to learning and recall, patterns can be more important than facts."

~Tim Hurson
Essential Question:
Who is doing the work?

Learn to research, think, problem-solve and write like a scientist, engineer, coach, artist, historian, writer, mathematician, musician ....

Sample Project:
6th graders write ABC book

Students study the organs of the body
Develop a comparisons
Create an ABC book

Kidney
By Holly and Sarina

The kidneys can relate to a pool filter because both of them separate the bad things from the good things. The pool filter empties the bugs and leaves from the water and the kidneys, they get rid of the bad things in your blood and turn it into liquid waste.
What process did you use to complete the project?

We organized and decided who was going to do what and how.

Then we read everything over to see if everything made sense to our audience.

What happens in schools when life’s an open book test?

21st century skills

Collaboration
Critical thinking
Communication
Creativity
Connectivity

Information and Schools
Literate ~ knowledgeable and educated in a field.

Literacy ~ Ability to read, spell and to communicate through written language.

Schools developed as information centers. Teachers functioned as “information gatekeepers.”

Teachers “knew” the information.

Students “got” it from teachers and “learned” it.

Information flow in a “traditional” classroom.
Our natural, unexamined model for teaching is Telling...

... to carefully and clearly tell students something they did not previously know.

Knowledge is transmitted, we imagine, through this act of telling.

~ Donald Finkel

"No generation in history has ever been so thoroughly prepared for the industrial age."

~ David Warlick

Digitized information is Fluid
Information is fragmented

New technologies have put **students in charge of the information** they access, store, analyze and share.

Fosters a **bottom-up information flow**.

We can be **creators** as well as consumers of content

Digital tools foster personal creativity

Share your photos. Watch the world.
Digital age engages students with choices.

#1 factor for improving student motivation is choice.

Not whether the student does the assignment, but how they engage in the work.

~Doug Reeves

Technology helps us see information and ideas in new ways.

There’s a new “literacy”

- find information
- decode it
- critically evaluate it
- organize it into digital libraries
- be able to share it with others
- maintain a selective focus

Adapted from David Warlick
But students are adrift in a sea of text without context.

And the information gatekeepers are gone.

Search is highly personal and empowering. It's the antithesis of being told or taught.

~ Eric Schmidt, Google CEO

I googled “was there a holocaust”
Literacy is selective focus

To be successful in the digital age they’ll need to be reflective and self-directed.

TEACHING:
creating learning experiences that provoke student reflection

<table>
<thead>
<tr>
<th>Traditional Writing is Assigned</th>
<th>Writing Assigned with Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students are asked to write only on the teacher's topics.</td>
<td>Students can develop topics that matter to them.</td>
</tr>
<tr>
<td>Student writes for the teacher.</td>
<td>Audience and purpose for writing is identified.</td>
</tr>
<tr>
<td>Teacher grades their writing.</td>
<td>Students are asked to reflect on their growth.</td>
</tr>
</tbody>
</table>
Reflection should be higher-order thinking.

It’s about patterns, evaluations and creating goals.

Higher and lower-order reflection:
- Creating
- Evaluating
- Analyzing
- Applying
- Understanding
- Remembering

I can describe patterns, create my own connections, and assess my progress.

I can tell you what I did, but don't expect me to think about it.


See my prezi presentation on Reflection at: http://bit.ly/cKbFFj