STEM In Literacy

Dr. Denise Newman
Presenter Contact Information

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Essential Question

Why is it important to include STEM in Literacy?
Presentation Outcomes

1. You will understand why it’s important to include STEM in literacy lessons.

2. You will have an idea about how to include all aspects of STEM in a literacy lesson.

3. You will have resources to better help you implement STEM.
Error Free Learning (there weren't any consequences – other than death of character)

He kept dying (failed the test/project/task) but didn't get frustrated.

He kept trying again, because he wouldn't accept failure.

He was learning relevant vocabulary related to WW2.

He was learning historical events and researching ON HIS OWN!

How can this translate into a classroom?

We learn from technology too!!!! How many times have you tried to replay these lives and learned from your mistakes while doing it?
Why STEM in Literacy?

- Increases Rigor in Teaching and Learning.
- Rigor and Relevance Framework
Why STEM in Literacy?

• Increases student engagement
• Increases student curiosity
• Supports individual differentiation
• Supports students with different learning modalities
• Decreases inappropriate behavior
• Increases student learning
• Increases student scores
• Helps improve lexile scores
S is for Science

• Scientific Method –
  • Scientific Informational Text
    • Scientific Method

• Using Science Experiments to explain how or why things happen.
  • Exploding Pinata’s.
    • Students Read passage about piñata’s
    • Students answer Literacy Standards based questions about passage.
    • Students make and explore piñata’s.
T is for Technology

• Book Adventure – Alternative to AR
• Reading Rewards – Online Reading Logs
• Computers for Research, Word Processing
• Digital Camera’s for students to film re-enactments of plays or drama’s.
T is for Technology

- Virtual Reality Books – My Perfect Puppy – Reading Comprehension
T is for Technology

• HP Reveal
  • On your phone or iPad, download the HP Reveal app found in the app store.
  • Create an account
  • In the discover aura’s search box type in denisehnewman
  • Click on denisehnewman’s public auras
  • Click on follow.
  • Click on the blue circle with a square in it at the bottom and point it at one of the 2 pics.
Students taking pictures of everyday things to enhance their writing. Students creating a growth portfolio of writing. Students recording their critic of a book (think reading rainbow).

Use technology based ideas such as social media to write stories or directions. #theydoitanyway

Students Scanning, printing, publishing, copying
1. Download the **metaverse** app.
2. Scan QR code

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**Google Expeditions**

**Animated Globes**

**Time Graphics**

**Leaders in Literacy Conference**
Disparities in STEM preparation

Two-thirds of undergraduates said they felt prepared when asked: “Did you feel your previous academic experiences effectively prepared you to concentrate in a science, technology, engineering or math field when you entered Brown?” But black and Hispanic students and those on financial aid were less likely than other students to say they felt prepared.

Percent of students feeling prepared for a STEM concentration:

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students</td>
<td>66%</td>
</tr>
<tr>
<td>White</td>
<td>70%</td>
</tr>
<tr>
<td>Black</td>
<td>55%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>39%</td>
</tr>
<tr>
<td>On financial aid</td>
<td>58%</td>
</tr>
<tr>
<td>Not on financial aid</td>
<td>75%</td>
</tr>
</tbody>
</table>
E is for Engineering

- Engineering Field is the fastest growing field in the WORLD!!

- Civil Engineering is the fastest growing subfield in Engineering!

- Sales Engineering (selling technology and science equipment to businesses and health care facilities) has an average income of $92,000/year with a BACHELORS degree!!

Job Market Growth Rates
By Engineering Specialty

- Biomedical
- Petroleum
- Civil
- Environmental
- Sales
- Nuclear
E is for Engineering

- How can we help our students be prepared?
- EXPOSURE!!!
- EDP process
  - Research, Design, Build, Test, Improve
- Provide opportunities to build and test within the core content courses.
- **Exploding Pinata’s.**
  - Allow students to work and build piñata as a STEM learning center or after they have completed core course work.
  - Provide students with materials needed to build and test.
  - Collaborate with other classes such as science or STEM
- Books (Resources)
  - STEAM: Design Challenges
  - DIY Project Based Learning for ELA and History by Heather Wolpert – Gawron
M is for Math

• Exploding Pinata’s
  • Provide a learning center for student’s to write and exchange Math problems related to the unit.
  • Provide a math problem for example:
    • The hospital has 59 patients. Each piñata has a 4:1 ratio. How many piñata’s do you need to make sure each patient gets an opportunity to play?

• Provide a learning center with math vocabulary plus content vocabulary.
  • Flashcards of vocabulary words from rubicon
  • Word Nerd Paper
Conclusion

• STEM components are important to include in Literacy because they:
  • Increase rigor
  • Increase learning
  • Increase Test Scores
  • Increase student engagement

• Can include some or all of the components.

• Should be fun.

• Student – Led – Should not be an extra burden on the teacher (teacher should be the guide on the side).
Table Talks at 10 – 11:00
Resources

• Effective Instructional Strategies by International Center for Leadership in Education.


• STEAM: Design Challenges

• DIY Project Based Learning for ELA and History by Heather Wolpert – Gawron

• Read Works. Retrieved from www.readworks.com

• Word Nerds by Brenda J Overturf and Leslie Montgomery
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