Student Created Videos to Present AP FRQs

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You will create a video explaining answers to specific AP questions (outlined below). Research your question (easiest thing to do is google "AP chemistry 201_ Question _") and try to answer it. You may choose to print out the answer key given by college board or write your own using that key. Then video record yourself answer the question (no faces-hands and paper only). The easiest way to do this is prop up your phone and just speak into it while uncovering answers as you go but you can choose to do something with more production value if you would like to (see tutorial on EDpuzzle).
Be sure to include all of the parts of the project outlined in the rubric below. Email the video to __________________ or share it via google drive by __________________. In the email, include two follow up questions you would ask a peer to check their understanding.
After all submissions are obtained, the videos will be posted on EDpuzzle along with the questions. You should try the FRQ by googling the question number and then check your work on the questions to review. On EDpuzzle, you will critique each other’s videos with questions at the end of the video. These videos, made by your peers, will count as homework credit if the video is watched to completion and questions are answered correctly and thoughtfully. Late projects will lose points and the project will count as two quizzes in quarter 4 (one quiz per video created). See rubric expectations below.
Tutorial
<table>
<thead>
<tr>
<th>Required</th>
<th>Points</th>
<th>Self-Check</th>
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<tbody>
<tr>
<td>Explain how you know which equation or vocabulary words are needed</td>
<td>2</td>
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<tr>
<td>Explain how you know which numbers to plug in for each variable</td>
<td>1</td>
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<tr>
<td>Explain any unit conversions and why you needed to convert them</td>
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<tr>
<td>Explanations are clear and understandable; in student language</td>
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<tr>
<td>Writing is clear and visible in the video</td>
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<tr>
<td>Video is &gt;20 min for long questions and &gt;7 min for short questions</td>
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<td>2019 # 1, 4</td>
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<td>2019 # 2, 5</td>
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Example of pre-printed answer keys
QUESTION 6.

\[ \text{Ba}^{2+}(aq) + \text{EDTA}^{4-}(aq) \rightleftharpoons \text{Ba(EDTA)}^{2-}(aq) \quad K = 7.7 \times 10^7 \]

The polyatomic ion \( \text{C}_{10}\text{H}_{12}\text{N}_{2}\text{O}_8^{4-} \) is commonly abbreviated as \( \text{EDTA}^{4-} \). The ion can form complexes with metal ions in aqueous solutions. A complex of \( \text{EDTA}^{4-} \) with \( \text{Ba}^{2+} \) ion forms according to the equation above. A 50.0 mL volume of a solution that has an \( \text{EDTA}^{4-}(aq) \) concentration of 0.30 \( M \) is mixed with 50.0 mL of 0.20 \( M \) \( \text{Ba(NO}_3)_2 \) to produce 100.0 mL of solution.

(a) Considering the value of \( K \) for the reaction, determine the concentration of \( \text{Ba(EDTA)}^{2-}(aq) \) in the 100.0 mL of solution. Justify your answer.

Based on the \( K \) value, the reaction goes essentially to completion. \( \text{Ba}^{2+}(aq) \) is the limiting reactant.

The concentration of \( \text{Ba}^{2+} \) when the solutions are first mixed but before any reaction takes place is \( 0.20 \text{ M}/2 = 0.10 \text{ M} \).

Thus the equilibrium concentration of \( \text{Ba(EDTA)}^{2-}(aq) \) is 0.10 \( \text{ M} \).
Example of Great Annotations
Example of Creating Annotations During and After the Video Creation

4. A student is doing experiments with CO₂. Originally, a sample of the gas is in a rigid container at 299 K and 0.70 atm. The student increases the temperature of the CO₂(g) in the container to 425 K.

(a) Describe the effect of raising the temperature on the average speed of CO₂(g) molecules.

(b) Calculate the pressure of the CO₂(g).

(c) In terms of kinetic molecular theory, explain why the average speed of the CO₂(g) in the container changes as it is heated to 425 K.

(d) The student measures the actual pressure of CO₂ at 425 K and observes that it is less than the pressure predicted by the ideal gas law. Explain why this occurs in heat = in KE:

↑ in heat = ↑ in KE
Example of Prepared Notes

Heat = KE

Initial conditions:
\[ \frac{P_1}{T_1} = \frac{P_2}{T_2} \]
\[ \frac{0.70 \text{ atm}}{299 \text{ K}} = \frac{P_2}{425 \text{ K}} \]

Cross multiply:
\[ P_2 = \frac{425 \text{ K}}{299 \text{ K}} \times 0.70 \text{ atm} \]

=b) 

1. Spaces between molecules are larger than the molecules themselves.
2. Gas molecules move in a random order.
3. At average KE is determined solely by temp.
4. All collisions are elastic.

VOCAB: KINETIC MOLECULAR THEORY
Student Questions

- **2019 #1f**: “Explain why 70.1 is the $S_{\text{rxn}}$ and not used as a reactant or product $S$”
- **2019 #3b**: “Should the Ca$^{+2}$ ions be larger or smaller than the Na$^+$ ions, if asked? Justify.”
- **2019 #67b** “Explain how significant figures are analyzed when reading a burette.”
## AP FRQ Project Reflection

After trying the assigned FRQ, and watching this video reviewing the answers, reflect on the video:

### Your name *

Short answer text

### Presenter’s Name: *

Short answer text

### FRQ Question *

- [ ] 2019 1
- [ ] 2019 2
- [ ] 2019 3
- [ ] 2019 4

### Did the presenter explain how you know which equation or vocabulary words are needed? *

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<thead>
<tr>
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### Explain your choice above. *

Long answer text

### Did the presenter explain how you know which numbers to plug in for each variable? *

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### Explain your choice above. *

Long answer text
Did the presenter explain any unit conversions and why you needed to convert them? *

1 2 3 4 5
Very poor □ □ □ □ □ Very clear □

Were the presenter’s explanations clear and understandable and in “student language”? *

1 2 3 4 5
NO, very confusing □ □ □ □ □ YES, very clear □

Was the writing or fonts clear and visible in the video?

1 2
Too blurry or small to read □ □

Did the questions at the video help you determine if you understood the content? *

1 2 3 4 5
The questions weren’t well thought out □ □ □ □ □ Great follow up questions.

Explain your answer above with an example.

Long answer text
My Reasoning

- Allows students to look at multiple questions that are free on the internet at home: Focus on locked content in class.
- Makes students dive deeper into the questions in order to explain them: “OMG Coulomb’s Law was on the test and it was in my question. I nailed it”
- Students hear the answers in “student lingo” and in another perspective than mine.
Notes For Instructors

• Hold the students to high expectations outwardly but be accepting of their work.
• Provide an example video
• Give them ample time to work
• Give choice to work alone or in pairs
Ideas for Next Year

• Use Flip Grid? https://info.flipgrid.com/

• Require more follow up questions
Survey, Certificate, and Downloads

To complete a brief survey about the symposium, and to generate your certificate of attendance, visit:


To Download Resources:


Want to present a webinar next year? Send an email!

AACTwebinar@acs.org