Discussion Leader Activity: Team Quiz Show

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**Created for:** Bio 93

**Activity Type:** Small group activity (but entire class is involved at the same time)

**Time Needed in Discussion:** 40-45 minutes

**Purpose**
- To provide students with a review of the material in an engaging and exciting manner
- To give students the opportunity to work together as a team to answer the question at hand without their books or notes (only each other as resources)

**Abstract**

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<th>Pre-class prep</th>
<th>25 min</th>
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<td>Teacher passes out “buzzers,” explains rules</td>
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<td>Teacher leads quiz show, students answer questions</td>
<td>40-45 min</td>
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**Supplies**
- 7-9 index cards with different symbols drawn on each (for students to raise as their buzzer to answer the question)
- List of questions to pose to the class w/ answers
- Dry-erase markers to write questions on the board and keep track of team points
- Bags of candy for the 1st, 2nd, 3rd place teams

**Pre-class Prep**
1. Develop list of questions/answers (need at least 12-20 questions or so to vary between classes – see attached samples).
2. Draw symbols on buzzers
3. Procure candy from either grocery store or the bookstore (Snickers and Reese’s are good choices)

**In Class**
1. (5 min) Have students get into groups of 4. They need to put away all notes and books so that they only have each other as resources. The Instructor needs to distribute the “buzzer” cards to each group and ask them to come up with a creative team name (nothing with Bio93 Bio students).
2. (40 min) Explain how the quiz show will work. The Instructor will ask a question, write the important components on the board, and allow the class time to answer. The first group to raise their buzzer and correctly answer the question will receive one point. In the event that two groups raise their buzzers at the same time, they will each have the...
opportunity to answer the question and earn a point. Multiple point questions will be given partial credit if the team gets part of the answer correct. Another team will be allowed to buzz in and answer the remaining part of the question to earn points. The team with the most points at the end of the game wins. Prizes will be awarded for 1st, 2nd, and 3rd.

**Things to Ask or Emphasize**

- At the end of each question, make sure all students understand the concept/answer. If student have questions, take the time to explain the correct answer.
- Make sure all groups participate. Ask some questions that allow all groups to draw and buzz in when they are finished. Award points to all groups with correct answers…this allows all groups to get on the scoreboard.
- Post questions/answers after class so students can review and contact the Instructor with any additional questions.

**Comments**

- Some students may get lost in the spirit of the competition, so keep an eye on the shy groups and encourage them to participate.
- You may be tempted to run this as a powerpoint game, but recognize the value of drawing. It allows you to more easily teach if students have difficulty with a question.
- If the exam is a day or two away, use difficult questions, not easy ones. The goal is to stretch students and encourage interaction with each other, not have them race to be first and make the confused students feel left out.
- On the other hand, if the exam is later that same day, don’t scare students with difficult questions. Build confidence and help with the basics the morning before an exam.

Sample question set with answers (preparation for 1st midterm):

1. –OH
   a. Is this polar or non-polar? Polar
   b. Why? O atom is more electronegative than the H atom. Therefore, electrons will gravitate toward the O atom, creating an unequal sharing of electrons.

2. CH₃
   a. What is this functional group? Methyl

3. Review the hydrolysis reaction (what enters the reaction; what happens to the initial compound?)
   Water enters the reaction to lyse the original compound (i.e. break it apart into two compounds)
4. Phospholipids arranged in a circular structure in water
   a. What is this structure? Micelle
   b. Why is it arranged this way? Non-polar phospholipid tails want to be way from the POLAR water.

5. Review the structure of an amino acid
   a. What are the two termini? Make sure you know two names for each.
      N-terminus, amino terminus
      C-terminus, carboxy terminus

6. What are three environments factors influencing protein conformation?
   -pH
   -High salt concentration
   -Temperature

7. What is the name of the step of DNA→RNA?
   Transcription
   a. If my DNA strand is ATCGTTAG, what will be my mRNA transcript?
      UAGCAAUC (don’t forget uracil in RNA!!!!!)

8. The hydrolysis of ATP releases energy. What kind of reaction is this? Exergonic

9. Draw the curve of an exergonic reaction (include reactants, Ea, products; label axes)

10. Draw the curve of an endergonic reaction (include reactants, input energy, products; label axes)
11. mRNA → protein
   a. Where does this step occur?  
      Ribosomes
   b. What is this step called?  
      Translation

12. Do enzymes increase or decrease the activation energy of a reaction?
    Decrease
    a. Why?
       Enzymes are added to increase the rate of reaction. By decreasing the energy needed for the reaction to run, the reaction will proceed at a faster rate.

13. What are two things that Tyrosine Kinase receptors and G-protein receptors have in common?
    Transmembrane receptors, 2nd messenger signaling, require energy for signaling

This activity was edited by Adrienne Williams