Tips for Using Audience Response Systems

1. Test location and computer system prior to lecture.

2. Begin each class session with registration. Consider using a warm-up question (2 minutes) and used for “sign in.”

3. Construct good questions—
   a. Short questions and brief options
   b. Have no more than 5 answer options
   c. Number all answers to match the keypads

4. Build in one or two minutes for presenting and polling and 2-3 for discussion.

5. Consider asking the students to discuss the discrepancies in answers in pairs and then re-poll. Do a follow-up question to see if students really get it.

6. Use polling sparingly to highlight certain points. A good rule of thumb is a maximum of 3-4 per 50 minute session (5 per hour).

7. Use questions to see what the audience knows before you teach it (needs assessment to gain interest) and then use a different form of the question after teaching the material.

8. Don’t be afraid to make the questions hard, better to get a distribution of responses to elicit discussion.

9. Consider using game-shows for course review, for example clicker jeopardy: http://teach-tech.westernu.edu/playing-jeopardy-on-turningpoint/

10. Anticipate possible student responses and be prepared to discuss.

Uses for Clickers during a lecture:

- Explore pre-existing knowledge
- Activate learning (trigger discussion, identify important areas, generate need to know)
- Mechanism for honest answers to sensitive questions
- Check for or promote understanding and give feedback
- Practice solving problems
- Identify values, attitudes, and opinions
- Check convergence/divergence and consensus
- Get feedback from the learners
## Developing ARS Questions using Fink’s Taxonomy

<table>
<thead>
<tr>
<th>Type of Question</th>
<th>Sample Questions</th>
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| **Foundational Knowledge:** Checks understanding and memory of concepts by having the learner explain or predict based on information provided. | 1. Based on the laboratory data provided above, which one of the following symptoms would you expect to see?  
2. A 15 year old complains of headache, abdominal pain and rash. He was previously well and his sister has similar symptoms. These findings are consistent with which of the following diagnoses? |
| **Application Questions:** Promote critical thinking or creative problem solving. Includes management of complex problems. | 1. After evaluating the patient just described, which of the following pharmacologic treatments would be your first choice? (Discuss why)  
2. Based on the findings shown in the video, rank your priority regarding most pertinent to least pertinent to the diagnosis. (Discuss why) |
| **Integration Questions:** Require connection of ideas, disciplines, different realms of life, perspectives or aspect of science. | 1. Which of the following laboratory tests will rule out 2 or more diagnoses?  
2. How does this patient’s hypertension relate to his heart failure? |
| **Human Dimension:** Demonstrate understanding of self, interpersonal relationships, leadership, ethics, teamwork, culture and diversity. | 1. How does the cultural context of the patient affect your prognosis?  
2. What is the role of the nurse in the described emergency situation? |
| **Compassion/Caring:** Demonstrates development of new feelings, interests and values. Demonstrates self-care. | 1. How confident are you in your ability to recognize the vagus nerve? (Likert scale)  
2. Which of the following causes you to be concerned? |
| **Learning How to Learn:** Promotion of self-directed learning, practice based learning and improvement, construction of knowledge, and inquiry. | 1. Did the practice session adequately prepare you for the exam?  
2. Which of the following concepts needs further review? |


*Table adapted from University of New Mexico reference below.*
## Developing ARS Questions using Bloom’s Taxonomy

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| **Knowledge:**            | 1. Which of the following pathways is represents the feedback for the hypothalamic-pituitary axis in the disease described?  
                            | 2. A patient develops Horner’s syndrome and has symptoms of diaphoresis. Which tumor is most likely?                                            |
| **Comprehension:**        | 1. Which of the following historical factors is key to the diagnosis?  
                            | 2. The child in the above scenario is exhibiting behaviors consistent with which of the following diagnoses?                                      |
| **Application:**          | 1. The patient presents to the emergency room with acute onset of dizziness and loss of consciousness. Which is the most appropriate next step?  
                            | 2. Which of the following is the best dose for this 10 month old infant weighing 10 kilograms?                                           |
| **Analysis:**             | 1. If your patient has a fruity odor to his breath, which of the following results of the laboratory tests would you expect to see?  
                            | 2. Which of the following statements describes why the diagnosis is not pseudotumor cerebri?                                               |
| **Synthesis:**            | 1. List your differential diagnosis based on the information provided.  
                            | 2. Which of the following research methods would help to identify the cure to this cancer?                                               |
| **Evaluation:**           | 1. Rate your agreement with the statement using the following scale.  
                            | 2. Review the sample progress note and rate the quality using the scale below.                                                           |


* Table adapted from University of New Mexico reference below.*
References:


University of New Mexico, School of Medicine. Teacher and Educational Development. A Division of Educational Development and Research. Integrating Advances in Technology and Education Using An Audience Response System (ARS) To Promote Interest and Enhance Learning


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