Purposeful Questioning:
Interacting with Your Audiences for Better Learning

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Formative Assessment Review

- Who has heard of formative assessment before?
- Focus on gathering information about your students while you teach them
  - “formative”
- Assessment conversations are one way to do this in the planetarium
Assessment Conversations & The ESRU Cycle

- The ESRU Cycle
  - Elicit student response
  - Student Responds
  - Recognize student response
  - Use student response
- Developed by Ruiz-Primo and Furtak specifically for STEM classes
- Teacher should be a guide and facilitator
Teacher Elicits

• Step where you try to get more information from your students
• Can be the first step or a bridging step in the ESRU cycle
• Think of this stage as the beginning of a conversation
Eliciting Strategies

• Priming your audience to interact from the start
• Asking open-ended questions
  • What purpose do the questions you ask have?
• Knowing common misconceptions
Open-Ended Questions (OEQ)

Important skill when it comes to formative assessment

Encourages student to share more of their understanding and thought process

Effective open-ended questions challenge the student
OEQ Activity

- Is the sky blue?
  - What are possible responses to this question?

- What color is the sky?
  - What are possible responses to this question?

- Think of the purpose of the question
- The possible responses
- The structure of the question
- Is the answer you want in the question?

A link to a guide about questioning strategies, and other planetarium resources, is given at the end of the slides.
Teacher Uses Student Response

Stage that differentiates the ESRU cycle from other models

Teacher makes a conscious decision to use student response

Many teachers stop at Recognizing; the Using step is the most difficult

Going all the way until the Using step leads to a deeper conversation
Using Strategies

• Teacher…
  • Promotes students’ thinking by asking them to elaborate on their response (why/how)
  • Asks students to compare/contrast students’ responses
  • Connects to prior concepts, learning, investigations, conclusions
Questions
Activity

Divide into 5 groups

5 rounds
- 1st Round – Coming up with an open question
- 2nd Round – Answering an open question
- 3rd Round – Discussing answers and Using
- 4th Round – Answering Using
- 5th Round – Discussing answers to the Using

Meet back up in the main room
Round 1: Making an Open-Ended Question (3 mins)

• Make an open-ended question about the given topic below

Seasons, reasons why and differences between them
Round 2: Answering Open-Ended Questions (5 mins)

Move to another group’s page and answer the question they made

Answer as if you were a student in a planetarium show

Each person in the group can answer individually

Best 3 answers will be chosen
Round 3: Discussing Answers and Using (8 mins)

• Return to your original page and note the answers you received (5 mins)
  • What is your immediate reaction to them?
  • What would you have done if you had gotten these answers in an actual planetarium setting?
  • How much do these answers tell you about the person who gave them?
• Work together as a group to come up with a Using based on these answers (3 mins)
  • Some Using strategies: “why” questions, compare/contrast
Round 4: Answering Using’s (5 mins)

• Move to another group’s page and answer the Using they created based on your answers
• Answer as if you were a student in a planetarium show
• Choose best 3 answers to write down in the group’s page
Round 5: Discussing Answers (5 mins)

• Return to your original page and note the answers you received
• Discuss in a group
  • What is your immediate reaction to them?
  • What would you have done if you had gotten these answers in an actual planetarium setting?
• Compare the answers to the first open-ended question and the answers to the Using’s
  • Which sets of answers do you think reveal more about the person who gave them?
Discussion

- What difference did you notice between the two sets of answers?
- Which set of answers tells you more about the person who gave them?

More information

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- We’d LOVE your feedback!
- To be informed on future professional development opportunities, please fill out the brief survey using the QR code or here:

  https://tinyurl.com/xwzvfan2
Conclusion

• The assessment conversation is a versatile form of formative assessment
• Knowledge of the student is important for teaching
• Keeping the ESRU cycle in mind with your assessment conversations
Resources


