

MATHEMATICS

Component 2:

Differentiation in Instruction

Component 3:

Teaching Practice and Learning Environment

Component 4:

Effective and Reflective Practitioner

Contributors:

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Component 2: Differentiation in Instruction

a. Knowledge of Students (KOS)

- ❖ Did you give a detailed description of your class?
- ❖ Did you focus on information that would be most applicable to your goals and the lessons being taught?
- ❖ Did you tie your knowledge of teaching mathematics to specific knowledge about this particular group of students as you anticipate challenges and stumbling blocks?

b. Goals/Connections (G/C)

- ❖ Did you explain how your goals were relevant for the students you have described? Were the goals appropriate and attainable by the students?
- ❖ Did you clearly show that the goals are appropriately sequenced and why?
- ❖ Did you explain why you chose your activities and how they aligned to the goals?
- ❖ Did you explain how the activities enhanced student learning?
- ❖ Did you connect your goals to students' interests and needs and abilities?
- ❖ Do your goals explain what the students will doing/demonstrating/communicating?

c. Instruction (INS)

- ❖ Did you explain how your activities are sequenced and organized to develop student understanding of the key mathematical ideas?
- ❖ Did you explain how your activities are based on student interest and prior knowledge?
- ❖ How did the activities promote mathematical reasoning?
- ❖ How did the activities provide an opportunity for teacher insight into student understanding?

d. Students' Conceptual Understanding (CU)

- ❖ Was there a strong and meaningful connection between the featured activities?
- ❖ Did you explain how the featured activities are central and critical to the main idea?
- ❖ Did each activity further the students' understanding of the material in relation the unit goals?
- ❖ Did you demonstrate a strong intentional connection between the activities and the key mathematical ideas of the unit?

e. Assessment/Feedback (ASFB)

- ❖ Did you show how assessment is woven into the unit design (using a variety of assessment strategies)?
- ❖ Is the feedback given to students specific enough to help them further their personal understanding of the material?
- ❖ Did you use multiple strategies (including personalized feedback, target questions, and instructive comments) to explore and extend students' mathematical thinking?
- ❖ Did you explain how your feedback encourages and develops your students' written mathematical thinking, reasoning, and communication?

- ❖ Did you identify each of the featured students' strengths and weaknesses, gaps in prior knowledge, and misconceptions from their work? Did you explain how this impacts their ability to grasp the big mathematical concept?
- ❖ Was the feedback for each of the featured students specific to that student and only that student?
- ❖ How did you demonstrate what you knew about the featured students' learning needs?
- ❖ Did you show how your specific feedback guided the featured students during the remainder of the unit?
- ❖ Did you show how your specific feedback guided the featured students to a deeper understanding of the unit's key mathematical ideas?
- ❖ Did you show clearly how the feedback improved student ability and helped the student achieve the instructional goals?

f. Connections (Conn)

- ❖ Did you make every connection between the concept of study, instructional activities, student analysis, feedback, and next steps clear and overt?

g. Pedagogy/Content Knowledge (PCK)

- ❖ Throughout your commentary, is your discussion, vocabulary, notation, etc., mathematically accurate and course appropriate?
- ❖ In your instructional sequencing and decision-making, as well as your student analysis, did you explain how you used sound pedagogy for your level/group of students?

h. Reflection (R)

- ❖ Did you discuss specific next steps and why you specifically chose them?
- ❖ Did you discuss what you could do better or differently and why, citing evidence from student responses?
- ❖ Did you discuss what went well and what you want to repeat and why, citing evidence from student responses?
- ❖ Did you analyze your teaching practice for the strengths and weaknesses revealed through this instructional sequence?
- ❖ Did you clearly explain how you would modify your teaching as a result of this activity?

Component 3: Teaching Practice and Learning Environment

a. Knowledge of Students (KOS)

- ❖ Aside from the information asked for in the guiding questions, what else do you know about these students as learners (e.g., learning styles, interests, individual personalities, cliques/groups, etc.)?
- ❖ Did you provide some individual examples of different learning needs for some of your students?

b. Goals/Connections (G/C)

- ❖ Did you have specific goals for the videos and did your activities align with the goals?
- ❖ Did you explain how the students' prior knowledge affected the goals you set?
- ❖ Did you articulate clear and logical sequencing for your instructional goals?
- ❖ Did you explain the link between prior knowledge and the activity in the video?
- ❖ Did you explain why the goals were appropriate for these specific students at this particular time?
- ❖ Did you articulate how your instructional approach and resources specifically support student learning of these goals?
- ❖ Did you clearly link the learning goals of the lesson with the students' long-term learning goals?
- ❖ Why is this lesson being taught as a whole-class lesson, small-group lesson or other instructional format? (The contents of the two videos combined must represent different instructional formats **and** different teaching strategies.)

c. Instruction (INS)

- ❖ Did you provide evidence that you support students in the development of building ideas, helping one another, and articulating discoveries?
- ❖ Did you demonstrate how you facilitate instruction so that it was student driven? Did they take responsibility for their learning?
- ❖ Did you demonstrate how you get students back on track if they are not understanding?
- ❖ Did you demonstrate how you extend the lesson if the students are understanding?
- ❖ Did you demonstrate how you support student use of the 8 Mathematical Practices?
- ❖ Did you make any modifications in response to student needs? Did you explain how you knew to make these modifications and describe their impact?

d. Learning Environment (LE)

- ❖ Did you explain the steps you took to establish a safe and equitable environment?
- ❖ What evidence shows that students are willing/able to communicate different viewpoints without repercussions?
- ❖ Is the learning environment conducive to mathematical reasoning and discourse?
- ❖ Did you connect your instructional format to the needs of your students, the content, and the learning goals? Did you explain how?

e. Engagement (ENG)

- ❖ How does the video show that the students appreciate, or are learning to appreciate, diverse opinions?
- ❖ Cite specific examples of significant student-student interaction.
- ❖ Does the video show both teacher-student and student-student interaction?
- ❖ Cite examples of how student discourse relates to the topic even when you are not with them (such as how one group continues working when you leave to work with another group).

f. Assessment (ASMT)

- ❖ Did you identify specific instances in each video where student learning was monitored and evaluated?
- ❖ Did you identify specific instances in each video where you made instructional adjustments and tell why you made them?
- ❖ Did you identify specific instances in each video where you provided constructive feedback? (Remember that feedback is not always verbal.)
- ❖ Did you show how your content knowledge allowed you to correct and re-direct misconceptions during the lessons seen on the video?

g. Analysis (ANA)

- ❖ What specific examples from the video show students meeting the goal(s)? How does it show this?
- ❖ What specific examples from the video show students' needs for the future? How does it show this?
- ❖ How did your planning and actions during the lesson enhance student attainment of the goal(s)?

h. Reflection (R)

- ❖ Did you describe how past experience impacted you're actions before and during the lesson?
- ❖ Did you explain and provide clear evidence to support your actions before, during, and after the lesson?
- ❖ Did you discuss what went well and what you want to repeat and why; citing evidence from the video?
- ❖ Did you discuss specific next steps and why you chose them?
- ❖ Did you discuss what you could do better or differently and why; citing evidence from the video?
- ❖ Did you answer to what extent you achieved your goals; citing evidence from the video?
- ❖ Did you tell how you would modify your teaching as a result of this activity and why? Is there anything you would seek out to improve your practice (collaboration with a colleague, observation of a colleague, training on a strategy, etc.)?

Component 4: Effective and Reflective Practitioner

Do the forms and collect the evidence before beginning work on the written commentary.

a. Knowledge of Students (KOS)

- ❖ Have you collected statistical, anecdotal, and empirical evidence?
- ❖ Did you talk to previous teachers, school counselors, special education staff, ESOL staff, and other professionals?
- ❖ Did you survey parents to find out about technology available at home (e.g., internet access, laptops, cell phones), study habits, social concerns, etc.?
- ❖ Did you survey students to find out about the same things as you would with parent surveys as well as learning styles, interests, participation in activities, etc.?
- ❖ Did you get all you can from permanent records and administrative sources; e.g., attendance records, previous grades, standardized test scores, pertinent medical records?
- ❖ Did you include information that you collected at the beginning of the year as well as later in the year? (The assessor needs to know that you could adjust your teaching based on the knowledge you have about the class at any time during the year including the first week.)

b. Use of KOS (USE)

- ❖ Did you use the information collected to describe the entire class?
- ❖ Did you cite specific details from the attached evidence in your description in the answer to question 2 on the Group Profile and Information Sheet?
- ❖ Did you analyze and synthesize the information to discern patterns from the information you attached?
- ❖ Did you note those students who are outliers from the general pattern of the class for each trait you used in the whole class description?
- ❖ Did you analyze all the information to determine what was useful in describing the class?
- ❖ In selecting the pertinent information to use in the description, did you think outside the box? Remember: It is hard for students to do word problems if they are unable read; spatial relations covered on standardized math tests may give information that is important concerning students' artistic abilities; patterns which are tested in science and math often show up in music; analysis in social studies relies upon the ability to read both print and non-print text and analyze data; students have difficulty analyzing literature if they do not understand society, culture, and history.

- ❖ Did you not only rank the information from most to least important but also tell how you made that determination?

c. Goals and Connections (G/C)

- ❖ Did you tie the assessments to the goals and to the needs of this class of students at this point in time?
- ❖ Did you use these sentence stems for the last question on the Instructional Context Form: "The formative assessment ties to the goals because..."; "The formative assessment ties to the class' strengths/needs because..."; "The summative assessment ties to the goals because..."; "The summative assessment ties to the class' strengths/needs because...".?
- ❖ Do the strengths or needs you used in the sentence stems clearly show up in your description of the class in question 2 on the Group Profile and Information Sheet?
- ❖ Does your summative assessment cover all your goals, either directly or indirectly?

d. Assessments (ASMT)

- ❖ Did you tell in the commentary how you used the class' description in planning for the **types** of assessment you would use; e.g., visual, hands-on, written, auditory, etc.?
- ❖ Will the assessments give you measurable data that can be reported in some way, usually in a spreadsheet?
- ❖ If you used a rubric, is it tied directly to the goals and will it measure each goal separately?
- ❖ Did you tell how you guaranteed that the assessment **results** are fair, consistent, and accurate?

e. Analysis and Use of Data (AUD)

- ❖ Did you cite specific details from the results of the assessments when you presented your analysis in the commentary?
- ❖ Did you describe patterns of learning regarding the goals and note outliers when you discussed the results of the assessments?
- ❖ Did you tell how you altered instruction because of the formative assessment results?
- ❖ Did you tell how the summative assessment results impacted/will impact instruction of future units?
- ❖ Did you tie the alterations/future plans to the results, goals, and class description?

f. Feedback (FB)

- ❖ Can you describe clearly how the results of the assessments provide feedback to the students in a form they can use to improve their learning? For example, does the rubric have an individual criterion focusing on each part of the goal; does the rubric have clear descriptors so the student knows precisely what must be done to move to the next level; how does a student know why one answer is better than another on a multiple choice test?

g. Student Self-Assessment (SSA)

- ❖ Is the self-assessment example developmentally appropriate; i.e., kindergarteners probably just state how they think they are doing while seniors also give rationale for the decision and pinpoint perceived weaknesses/strengths?
- ❖ Did you clearly state how this helped drive your instruction and planning for the unit from that point forward?

h. Professional Learning Need (PLN)

- ❖ Does your professional need highlight something that was **learned** by you or your colleagues or both you and your colleagues?
- ❖ Did you answer these questions with question 1 on the Professional Learning Need Form: "What was the need"; "How did you know it was a need"; and "What did you do to meet the need"?
- ❖ Did your answer to question 2 on the Professional Learning Need Form tell how the evidence you attached ties to the action you took to meet the need, thus proving that you took the action you said you did?
- ❖ Does the commentary clearly answer the question "What was the impact of my action on student learning?"
- ❖ Did you cite examples from the attached evidence when answering the previous question?

i. Student Need (SN)

- ❖ Does the student need highlight something that was **needed** but out of the ordinary?
- ❖ Was the need school-wide or class specific or even student specific? Did you state this in the commentary?
- ❖ Did you answer these questions with question 1 on the Student Need Form: "What was the need"; "How did you know it was a need"; and "What did you do to meet the need"?
- ❖ Did the action you took require collaboration, leadership, and/or advocacy on your part? (While the directions and the guiding questions often use just the word "collaboration," any of these is appropriate for this section.)

- ❖ Do you know what true collaboration entails?
- ❖ Did your answer to question 2 on the Student Need Form tell how the evidence you attached ties to the action you took to meet the need, thus proving that you took the action you said you did?
- ❖ Does the commentary clearly answer the question "What was the impact of my action on student learning?"
- ❖ Did you cite examples from the attached evidence when answering the previous question?

j. Reflection (R)

- ❖ Did you tell how effective your efforts at gathering information for knowledge of students was for this class?
- ❖ Did you discuss what you could have done better or differently or more efficiently? Did you discuss what other types of information you might have gathered?
- ❖ Did you discuss the effectiveness of your assessments in measuring your students' performance and what you learned about effective assessment during the unit?
- ❖ Did you discuss what you could have done better or differently or more efficiently in terms of the assessments (including self-assessments)?
- ❖ Did you discuss the impact on both your professional learning and work to meet student needs? (Even though the commentary has only one question in the reflection section about this, you want to discuss both aspects.)
- ❖ Did you discuss specific future plans relating to the above parts?
- ❖ Did you answer the question of why for each of the above questions in this section?