

Intended Audience: Teachers


Purpose of the tool: When creating and designing integrated STEM curricular activities, reflection is a crucial step in the design process, as it provides a means of improving the design for future iterations. Reflective practice is also an important aspect of educator development and can assist in driving future instructional decisions, as well as improving teaching practice. This tool provides guidance for teacher reflection after the implementation of STEM activities either as an individual educator or in Professional Learning Communities (PLCs)/teams. The provided questions and reflection template can be used to initiate self-reflection and/or reflective conversations among collaborators in regard to planning processes, instruction during STEM activities, assessments including performance based, and the resulting student learning outcomes.



UNIT AND LESSON PLANNING

Question	Reflection	Action Step(s)
How well did collaborations work in planning for the STEM unit/lesson? What might I/we need to change to improve collaborative processes?		
Which parts of the STEM unit/lesson plans were strong? Which parts were weak or were not attended to?		
How much did pre-assessment or diagnostic data assist in driving the unit/lesson? What other data could I/we gather to assist in the development of the unit/lesson?		
To what extent did the unit/lesson align with grade-level TEKS?		
To what extent did the STEM unit/lesson integrate multiple areas of content? What type of integration was utilized?		
Was the scaffolding of the STEM unit/lesson activities appropriate for the student context?		


UNIT AND LESSON PLANNING

Question	Reflection	Action Step(s)
Were there any gaps in knowledge or misconceptions that were surprising? How might you address these gaps or misconceptions in future lessons?		
How well did the grade-level TEKS, learning goals, assessments, and activity choices align with one another?		

PREPARATION FOR STEM LESSONS/ACTIVITIES

Question	Reflection	Action Step(s)
What additional materials and tools, if any, will need to be included in future implementations of this unit/lesson?		
How effective were my/our volunteer recruitment efforts? How can I/we better recruit volunteers to assist with integrated STEM activities?		
How well did the collaborations work during the preparation of the STEM unit/lesson? What can be improved in this area? What might I/we need to change?		

PREPARATION FOR STEM LESSONS/ACTIVITIES

Question	Reflection	Action Step(s)
<p>Was the classroom space arranged and organized in a way that enhanced the learning (e.g. desk placement, materials management, storage)? In what ways, if any, could the arrangement be improved?</p>		
<p>If alternative spaces were used for teaching and learning during the STEM unit/lesson, were these spaces used effectively? How did students benefit from utilizing these spaces?</p>		
<p>How well did I/we communicate behavioral and learning expectations to students prior to implementation?</p>		
<p>For off-campus experiences, expert guest speakers, or virtual conferencing, what changes or improvements to planning could improve the implementation of these activities?</p>		
<p>How well did I/we communicate with leadership and other stakeholders?</p>		

INSTRUCTIONAL IMPLEMENTATION OF INTEGRATED STEM UNIT/LESSONS

Question	Reflection	Action Step(s)
<p>What instructional strategies might I/we change or improve in relation to this unit/lesson? What is the reasoning for making these changes?</p>		
<p>Were a variety of formative assessment techniques incorporated? Are the on-going formative assessments providing the needed insight into student learning throughout the unit/lesson?</p>		
<p>How did students show mastery of the content through the summative assessment (performance based or unit test)? What did you notice about student growth from pre-assessment, formative, and summative assessments?</p>		
<p>Is my/our feedback helpful to students? How can I/we provide better feedback to promote improvement?</p>		
<p>Did/I consistently enforce behavioral and learning expectations during the STEM unit/lesson? Are there any additional expectations that need to be added for future implementations?</p>		



INSTRUCTIONAL IMPLEMENTATION OF INTEGRATED STEM UNIT/LESSONS

Question	Reflection	Action Step(s)
For an off-campus experience, expert guest speaker, or virtual conferencing, what changes or improvements to the experience are needed? What is the reasoning for needing these changes or improvements?		
In what ways are students sharing their learning, work, and end-products with each other as well as other stakeholders? How are students benefiting from making their learning public?		

STEM UNIT/LESSON IMPLEMENTATION ANALYSIS

Question	Reflection	Action Step(s)
What does the analysis of student work show about what students mastered and what procedural or conceptual errors remain? What is the needed reteach to close those procedural or conceptual gaps?		



STEM UNIT/LESSON IMPLEMENTATION ANALYSIS

Question	Reflection	Action Step(s)
What does the feedback from students say about this particular unit/lesson? How will I/we improve the STEM unit/lesson and instruction based on this feedback?		
What does the feedback from colleagues and other stakeholders say about this particular unit/ lesson? How will I/we improve the STEM unit/ lesson and instruction based on this feedback?		

OTHER COMMENTS ABOUT THE INTEGRATED STEM UNIT/LESSON: