



PROTOCOL 3.0 TOOLS

This project is funded by the National Science Foundation, grant #1438396.
Any opinions, findings, and conclusions or recommendations expressed in these materials are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.



PART 1. OBSERVER AND CLASS INFORMATION

Observer and Class Information (complete one for each observation)

Observation code	
Observer name	
Teacher name	
School name	
Course name	
Number of students	
Grade(s) of students	
Date(s) for observation	
Time period(s) for observation	
Pre-Observation Teacher Questions	
1. What are the big ideas (e.g., content, skills, competencies) that students will understand from this lesson or unit?	
2. Please provide a description of how you will use technology to support understanding these big ideas.	
3. What specific technology hardware and software will you or your students be using (e.g., learning management systems, Vernier probes, Excel, GPS/GIS)?	
4. If this lesson is part of a larger unit or project-based learning, briefly describe what you have done previously and what you plan to do later in terms of science content, science and engineering practices, and technology use.	
5. Why have you chosen to use technology with this lesson?	
6. To what extent is this lesson personalized or differentiated for students based on their developmental needs, skills, and interests?	
7. Please provide any materials you can before the class (e.g., lesson plans, attachments or handouts you will be using, weblinks), or provide the observer with the handouts when they arrive at your class.	
8. Is there anything else we should know about the selected lesson/unit or your students?	

PART 2. INTERVAL SHEET

Interval Sheet (complete one for every 10-minute interval)

Interval Description		Observation code:	Interval No.
Time period covered by this sheet (10 minute increments)	Time started: _____ Time finished: _____		
Activities Observed e.g., lecture, discussion, individual seatwork, hands-on activity, group work, assessment, test preparation, homework review			
Hardware Types Used e.g., desktop/laptop computers, mobile devices, smartboard, probes, graphing calculator			
Software Used e.g., word processing, web browser			
Technology Application Types	<input type="checkbox"/> INSTRUCTIONAL <input type="checkbox"/> UBIQUITOUS <input type="checkbox"/> STEM WORKPLACE	Detailed description	
Interval Evidence & Coding			
CATEGORY (may check more than one)	LEVEL^a (select only one)	TECH INTEGRATION^b (select only one)	EVIDENCE FOR CATEGORY, LEVEL, & TECH INTEGRATION CODES
Science and Engineering Practices <input type="checkbox"/> Asking questions & defining problems <input type="checkbox"/> Developing & using models <input type="checkbox"/> Planning & carrying out investigations <input type="checkbox"/> Analyzing & interpreting data <input type="checkbox"/> Using mathematics & computational thinking <input type="checkbox"/> Constructing explanations & designing solutions <input type="checkbox"/> Engaging in argument from evidence <input type="checkbox"/> Obtaining, evaluating, & communicating information	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> N/A	
Student Centered Teaching <input type="checkbox"/> Autonomous <input type="checkbox"/> Personalized <input type="checkbox"/> Competency-based	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> N/A	
Contextualized Teaching <input type="checkbox"/> Youth Experience <input type="checkbox"/> Science careers or work <input type="checkbox"/> Local/geographic context	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> N/A	

^aLEVEL CODES: 0 = No evidence • 1 = Incidental • 2= Embedded

^bTECH INTEGRATION CODES: 0 = No Tech • 1 = Minimally integrated • 2 = Partially integrated • 3 = Fully integrated • Not Applicable (if category code is N or None)

PART 3. POST-OBSERVATION TEACHER QUESTIONS

Post-Observation Teacher Questions	
1. How representative of your usual technology use was today's lesson?	
2. In what ways do you feel the technology use in today's lesson was effective in helping students understand the big ideas?	
3. Is there anything you would have done differently with regard to technology use?	
4. How would the lesson be different if you taught it without technology? (If you have previously taught this or a similar lesson without technology, please describe the differences.)	
5. Is there anything else we should know about the observed lesson/unit?	
6. Other follow up questions (Observers may have clarification questions after the observation).	

PART 4. POST-OBSERVATION SUMMARY

Observers can use the post-observation summary to synthesize the observations from the activity sheets. Much of the information can be copied directly from the interval sheets (green cells), and some needs to be synthesized by the observer from multiple data sources (blue cells). These cells require the observer to summarize from specific data sources and should be completed as soon after the classroom observation as possible. Note: while there are numeric values provided for each of the category levels and tech levels, the qualitative evidence will generally be an essential component. That is, the protocol authors do not recommend using the quantitative values alone in calculating and/or describing the quality of technology integration in the classroom.

Notes:

Green=cell that has should be copied directly from interval sheets

Blue = cell that observer needs to complete, synthesizing from multiple data sources

Content	Data source	1-3 sentence description
Name of course and grades of students	Pre-questions	[Copy from teacher pre-questions]
Big ideas students are working on and how teacher has designed technology to support those ideas	Pre- and post-questions	[Observer summarizes from the appropriate data sources]
Specific technology use in the lesson (e.g., hardware, software, technology application types, activities students engaged in)	Pre-questions and interval sheets	[Observer summarizes from the appropriate data sources]
How this lesson fits in with other technology use; coherence of content and technology use	Pre-questions and interval sheets	[Observer summarizes from the appropriate data sources]
Challenges in lesson and how teacher addressed them (e.g., technology glitch, classroom management)	Interval sheets and post-questions	[Observer summarizes from the appropriate data sources]

SEP Level	SEP Tech	How technology contributed to student use and/or understanding of SEPs (Key evidence and 1-3 examples; note specific SEP as relevant)
Interval sheet 1	[Copy from interval sheet]	[Provide justification from evidence box on interval sheet]
Interval sheet 2	[Copy from interval sheet]	[Provide justification from evidence box on interval sheet]
Interval sheet 3 ...	[Copy from interval sheet]	[Provide justification from evidence box on interval sheet]
Average science & engineering practices score	[Calculate average]	[Observers will look at all the evidence above and choose the most relevant evidence that summarizes the class]

Student-centered teaching (SCT) Level	SCT Tech	How technology contributed to student-centered teaching (Key evidence and 1-3 examples; note autonomy, personalization, competency-based as relevant)
Interval sheet 1	[Copy from interval sheet]	[Provide justification from evidence box on interval sheet]
Interval sheet 2	[Copy from interval sheet]	[Provide justification from evidence box on interval sheet]
Interval sheet 3 ...	[Copy from interval sheet]	[Provide justification from evidence box on interval sheet]
Average student-centered teaching score	[Calculate average]	[Observers will look at all the evidence above and choose the most relevant evidence that summarizes the class]

Context Level	Context Tech	How technology contributed to contextualization (Key evidence and 1-3 examples; note youth-focused, science-focused; time/place relevance as relevant)
Interval sheet 1	[Copy from interval sheet]	[Provide justification from evidence box on interval sheet]
Interval sheet 2	[Copy from interval sheet]	[Provide justification from evidence box on interval sheet]
Interval sheet 3 ...	[Copy from interval sheet]	[Provide justification from evidence box on interval sheet]
Average contextualization score	[Calculate average]	[Observers will look at all the evidence above and choose the most relevant evidence that summarizes the class]



Highest interval sheet # ____	Level	Tech	How technology contributed to each (Key evidence and 1-3 examples)
SEP	[Copy from interval sheet]	[Copy from interval sheet]	[Provide justification from evidence box on interval sheet]
SCT	[Copy from interval sheet]	[Copy from interval sheet]	[Provide justification from evidence box on interval sheet]
Contextualization	[Copy from interval sheet]	[Copy from interval sheet]	[Provide justification from evidence box on interval sheet]
Summary	N/A	N/A	[Observers will look at all the evidence above and choose the most relevant evidence that summarizes the interval sheet]