

### IRG Section II

# A/B Workshop Professional Development Model and Workshop Planning Overview

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### A/B WORKSHOP PROFESSIONAL DEVELOPMENT MODEL

MSTP implemented a unique and innovative PD model that provided teachers with a way to synthesize their knowledge of STEM content and pedagogy by developing exemplary lessons.

The model invited each participating school to convene monthly sets of half-day A/B workshops targeted toward developing and refining lessons that infused mathematics into science and technology topics; enhanced pedagogy; and aligned content to standards. The procedure used a research-based lesson planning template that guided inclusion of standards-based content, pedagogy, and diversified assessment. The template itself was reviewed by expert curriculum consultants and school administrators, field tested, and revised.

The A workshop was scheduled at the beginning of the month, the B workshop toward the end of the month. During the A workshop, teachers (in STEM teams) drafted lesson plans, engaged in peer collaboration, optimized mathematics infusion, and drafted assessment rubrics. Between the A and B workshops, teachers individually implemented lessons with classes, collected and scored student work, and reflected on possible improvements. During the B workshop, teachers engaged in collaborative peer review within and across disciplines to further enhance their lessons based upon examination of student work for evidence of understanding. During the workshops, support to participating teachers was provided by the district's MSTP leadership team (the Collaborative School Support Team – CSST). Over 700 mathematics, science, and technology education template-based lessons were developed.

The following pages provide guidance for those who might wish to implement a professional development model based upon the A/B workshop model.

Note: *CSSTs* represent Collaborative School Support Teams, which in MSTP, were seven-person school-based team comprising five middle school personnel and two university disciplinary STEM experts. The middle school personnel included one master science teacher; one master mathematics teacher; one master technology teacher; the middle school principal; and a school social worker, psychologist, or guidance counselor.

The CSSTs were designed to operate in a non-hierarchical manner. Each participant's strengths were valued equally.

### MSTP A/B WORKSHOP MODEL IN BRIEF

### "A" Workshop

Teachers draft lesson plans, engage in peer collaboration, optimize mathematics infusion, draft scoring rubric.

### Between "A" and "B" Workshops

Teachers implement lesson with classes; collect and score student work; reflect on possible changes.

### "B" Workshop

In groups, teachers examine student work for evidence of student understanding. Teachers revise lessons, assessments, and rubrics based on evidence collected and peer reviews.

# SUMMARY OF PROCEDURES Guidelines for MSTP A/B Workshops

At Planning **Meeting (A1)**, CSST members will gather to plan Workshop (A). They will write an Agenda for Workshop (A) and coordinate any necessary photocopying of forms to run the workshop. (See sample Agenda for Workshop (A) in Appendix.)

Prior to Workshop (A), all teachers will develop drafts of initial lesson plans to bring to the workshop and discuss with colleagues. These lesson plans should aim to enhance a lesson usually taught rather than to plan an entirely new lesson. (For the October 2006 Workshop (A), these will be drafted on teachers' own forms. Subsequently, for all other months, these initial plans will be drafted on MSTP project-created lesson plan templates, provided in the Appendix of this guide.)

At Workshop (A), teachers will further develop their draft lesson plans, fitting them to MSTP templates, while collaborating with peers. Collaboration will occur both within content areas and across content areas (so that Math infusion is "optimized"). Teachers will also develop drafts of pre- and post-assessment measures and a scoring rubric to assess student learning of lesson objectives.

Throughout the next 2 weeks, teachers will implement the lessons and assessments they drafted and collect student work. Immediately following lesson implementation, teachers will take notes in the last section of the template to record reflections on lesson success. They will refer to the *Immediate Reflection Prompts* (included in the Appendix to this guide) to help direct reflection notes. Teachers will score all student work and select 3 samples (good, passable, and poor) to bring to Workshop (B).

At **Workshop** (B), teachers will review the success of their lesson implementation. In small groups, teachers will examine student work samples collected for evidence of student understanding. They will revise lessons, assessments, and rubrics as necessary, based on evidence collected and peer reviews. Teachers will complete the *Teacher A/B Feedback Form* to document reactions to the workshops, to the process, and insights regarding impact. This feedback form is provided in the Appendix.

At the end of Workshop (B), CSST members will collect *Packets* from each teacher consisting of: draft lesson plans, assessments (pre/post) and rubrics (A); 3 samples of student work (good, passable, poor); and, revised lesson plans, assessments (pre/post) and rubrics (B). Feedback forms will be collected separately and anonymously.

At Follow-up **Meeting (B1),** CSST members will review and discuss the month's work. They will review all *Teacher Packets* (including initial and revised lessons, assessment measures, and rubrics; and student work samples) and *Teacher A/B Feedback Forms* submitted by teachers. CSST members will complete the CSST *A/B Synthesis and Summary Form*, with a University Faculty member as the recorder, about the A/B Workshop proceedings and teacher progress.

At the end of each month, after all activities have been completed, the CSST will submit to MSTP Management:

Agendas for Workshops (A) and (B),

Teacher Packets, including:

draft lesson plans, assessments (pre/post) and rubrics (A);

3 samples of student work (good, passable, poor); and,

revised lesson plans, assessments (pre/post) and rubrics (B).

Completed Teacher A/B Feedback Forms

Completed CSST A/B Synthesis and Summary Form

# A/B WORKSHOP PLANNING CHART

Workshop	<b>Participants</b>	<u>Preparation</u>	Actions	<u>Deliverables</u>
	(Who attends?)	(What do I do or bring?)	(What happen?)	(What are the expected material outcomes?)
Meeting (A1)	CSST only	1	<ul> <li>Plan Workshops (A) and (B) (write agendas)</li> <li>Coordinate prep tasks (copying, etc)</li> </ul>	<ul> <li>Agenda for Workshop (A)</li> <li>Agenda for Workshop (B)</li> </ul>
Before Workshop (A)	All teachers	<ul> <li>Find existing lesson plan to enhance/ infuse</li> </ul>	<ul> <li>Draft a lesson plan using MSTP template (enhancing pre-existing lesson)</li> </ul>	<ul> <li>Rough draft of lesson plan on MSTP template</li> </ul>
Workshop (A) Week I	CSST & All Teachers	For October only, CSST brings to Workshop:  model lesson plans, assessments, rubrics blank templates	<ul> <li>For October only presentation of process, model materials, and forms</li> <li>Peer collaboration and review</li> <li>Complete drafts of lesson plans on templates</li> <li>Draft assessments measures</li> <li>Draft scoring rubric</li> </ul>	<ul> <li>Drafted lesson plans on MSTP templates</li> <li>Drafted assessments measures</li> <li>Drafted scoring rubrics</li> </ul>
Before Workshop (B)	All Teachers		<ul> <li>Implement lessons</li> <li>Administer assessments to students</li> <li>Collect and score student work</li> <li>Select 3 samples of student work (good, passable, poor)</li> <li>Write reflections and notes on template using Immediate Reflection Prompts</li> </ul>	<ul> <li>Reflections on lesson template</li> <li>3 samples of student work (good, passable, poor)</li> </ul>
Workshop (B) Week 4	CSST & All Teachers	Teachers bring to workshop:  Lesson plans (with reflections)  Assessments  Rubrics for scoring assessments  Sample student work  Blank template	<ul> <li>Examine sample student work</li> <li>Peer collaboration and review</li> <li>Revise lesson plans</li> <li>Revise assessment measures</li> <li>Revise rubrics</li> <li>Administer feedback forms to teachers</li> </ul>	<ul> <li>Teacher Packets including:         <ul> <li>draft lesson plans, assessments</li> <li>(pre/post) and rubrics (A);</li> <li>3 samples of student work;</li> <li>revised lesson plans, assessments</li> <li>(pre/post) and rubrics (B).</li> </ul> </li> <li>Completed Teacher A/B Feedback forms</li> </ul>
Meeting (B1)	CSST only	CSST gathers:  • Teacher Packets  • Completed Teacher A/B  Feedback forms  • CSST A/B Synthesis &  Summary Form (blank)	<ul> <li>Review Teacher Packets</li> <li>Review Teacher A/B Feedback forms</li> <li>Complete CSST A/B Synthesis and Summary form</li> </ul>	<ul> <li>Completed CSST 4/B Synthesis and Summary form</li> <li>Send package of all materials to MSTP Management</li> </ul>

# A/B WORKSHOP PLANNING CHART

Workshop	<b>Participants</b>	<u>Preparation</u>	Actions	<u>Deliverables</u>
	(Who attends?)	(What do I do or bring?)	(What happen?)	(What are the expected material outcomes?)
Meeting (A1)	CSST only	1	<ul> <li>Plan Workshops (A) and (B) (write agendas)</li> <li>Coordinate prep tasks (copying, etc)</li> </ul>	<ul> <li>Agenda for Workshop (A)</li> <li>Agenda for Workshop (B)</li> </ul>
Before Workshop (A)	All teachers	<ul> <li>Find existing lesson plan to enhance/ infuse</li> </ul>	<ul> <li>Draft a lesson plan using MSTP template (enhancing pre-existing lesson)</li> </ul>	<ul> <li>Rough draft of lesson plan on MSTP template</li> </ul>
Workshop (A) Week I	CSST & All Teachers	For October only, CSST brings to Workshop:  model lesson plans, assessments, rubrics blank templates	<ul> <li>For October only presentation of process, model materials, and forms</li> <li>Peer collaboration and review</li> <li>Complete drafts of lesson plans on templates</li> <li>Draft assessments measures</li> <li>Draft scoring rubric</li> </ul>	<ul> <li>Drafted lesson plans on MSTP templates</li> <li>Drafted assessments measures</li> <li>Drafted scoring rubrics</li> </ul>
Before Workshop (B)	All Teachers		<ul> <li>Implement lessons</li> <li>Administer assessments to students</li> <li>Collect and score student work</li> <li>Select 3 samples of student work (good, passable, poor)</li> <li>Write reflections and notes on template using Immediate Reflection Prompts</li> </ul>	<ul> <li>Reflections on lesson template</li> <li>3 samples of student work (good, passable, poor)</li> </ul>
Workshop (B) Week 4	CSST & All Teachers	Teachers bring to workshop:  Lesson plans (with reflections)  Assessments  Rubrics for scoring assessments  Sample student work  Blank template	<ul> <li>Examine sample student work</li> <li>Peer collaboration and review</li> <li>Revise lesson plans</li> <li>Revise assessment measures</li> <li>Revise rubrics</li> <li>Administer feedback forms to teachers</li> </ul>	<ul> <li>Teacher Packets including:         <ul> <li>draft lesson plans, assessments</li> <li>(pre/post) and rubrics (A);</li> <li>3 samples of student work;</li> <li>revised lesson plans, assessments</li> <li>(pre/post) and rubrics (B).</li> </ul> </li> <li>Completed Teacher A/B Feedback forms</li> </ul>
Meeting (B1)	CSST only	CSST gathers:  • Teacher Packets  • Completed Teacher A/B  Feedback forms  • CSST A/B Synthesis &  Summary Form (blank)	<ul> <li>Review Teacher Packets</li> <li>Review Teacher A/B Feedback forms</li> <li>Complete CSST A/B Synthesis and Summary form</li> </ul>	<ul> <li>Completed CSST 4/B Synthesis and Summary form</li> <li>Send package of all materials to MSTP Management</li> </ul>

# **APPENDIX**

### SAMPLE Agenda WORKSHOP (A) – October

**District/School:** 

xxxxxxx District - Main St Middle School

Date/Time:

October, (3:30pm - 6:00pm)

Workshop Objectives:

Teachers will understand the A/B Workshop Process, including tasks, material outcomes, etc.

Teachers will draft lesson plans on MSTP templates for an enhanced Math or mathinfused Science lesson to be implemented in the next 2 weeks.

Teachers will draft a pre- and post- assessment measure for this lesson to assess student understanding of lesson objectives.

Teachers will draft a scoring rubric to score pre- and post- assessment measures.

Agenda:

### (3:30pm – 3:45pm) - The A/B Workshop Process

CSST teachers explain A/B Workshop process; distribute forms and materials.

# (3:45 – 4:00pm) - Introduction of a Model Lesson template, Assessment, and Rubric

• CSST teachers lead participants through the model lessons, assessments, rubrics.

### (4:00pm - 4:30pm) - Peer Collaboration

 Participants collaborate with peers, discussing lesson ideas with same- and cross-discipline teachers.

(4:00pm - 4:15pm): Within discipline

Math teachers work with Math teachers, Science teachers work with Science teachers (4:15pm - 4:30pm): Cross discipline

Math teachers and Science teachers pair off and work together

### (4:30pm – 5:15pm) – Drafting Lesson Plans

Participants complete drafts of lessons on MSTP templates.

### (5:15pm - 6:00pm) - Drafting Assessment Measures and Scoring Rubrics

 Participants develop draft pre- and post- assessment measures and a draft scoring rubric.

### To All District Participating Teachers:

During the next 2 weeks, you are to implement the lesson plan drafted here today.

Assessment measures should be administered to students. Student work should be collected and scored and 3 samples should be brought to Workshop (B) (good, passable, poor).

Immediately, following lesson implementation, please note immediate reflections in the space provided at the end of the MSTP lesson plan template, using the Immediate Reflection Prompts as a guide. Please note that our next meeting (Workshop (B)) will be on (insert date in late October.

Please make sure to bring a copy of each of the following, to facilitate the next phase of our work:

- Your implemented lesson plan (on the MSTP template) with immediate reflections noted
- Each of your <u>assessment measures</u> (pre- and post-)
- Scoring rubrics
- Copies of sample <u>student work</u>

# SAMPLE Agenda WORKSHOP (A) – November (post-October)

District/School:

xxxxxxx District - Main St Middle School

Date/Time:

November, (3:30pm - 6:00pm)

Workshop Objectives:

Teachers will draft lesson plans on MSTP templates for an enhanced Math or math-

infused Science lesson to be implemented in the next 2 weeks.

Teachers will draft a pre- and post- assessment measure for this lesson to assess

student understanding of lesson objectives.

Teachers will draft a scoring rubric to score pre- and post- assessment measures.

Agenda:

### (3:30pm - 4:15pm) - Peer Collaboration

 Participants collaborate with peers, discussing lesson ideas with same- and cross-discipline teachers.

(3:30pm - 3:50pm): Within discipline

Math teachers work with Math teachers, Science teachers work with Science teachers

(3:50pm - 4:15pm): Cross discipline

Math teachers and Science/Technology teachers pair up and work together

### (4:15pm – 5:15pm) – Drafting Lesson Plans

Participants complete drafts of lessons on MSTP templates.

### (5:15pm - 6:00pm) - Drafting Assessment Measures and Scoring Rubrics

 Participants develop draft pre- and post- assessment measures and a draft scoring rubric.

### **To All District Participating Teachers:**

During the next 2 weeks, you are to implement the lesson plan that you drafted here today.

Assessment measures should be administered to students. Student work should be collected and scored

and 3 samples should be brought to Workshop (B) (good, passable, poor).

Immediately, following lesson implementation, please note immediate reflections in the space provided at the end of the MSTP lesson plan template, using the Immediate Reflection Prompts as a guide. Please note that our next meeting (Workshop "B") will be on (insert date).

Please make sure to bring a copy of each of the following, to facilitate the next phase of our work:

- Your implemented <u>lesson plan</u> (on the MSTP template) with <u>immediate reflections</u> noted
- Each of your assessment measures (pre- and post-)
- Scoring rubrics
- Copies of sample <u>student work</u>

# SAMPLE Agenda WORKSHOP (A) – November (post-October)

District/School:

xxxxxxx District - Main St Middle School

Date/Time:

November, (3:30pm - 6:00pm)

Workshop Objectives:

Teachers will draft lesson plans on MSTP templates for an enhanced Math or math-

infused Science lesson to be implemented in the next 2 weeks.

Teachers will draft a pre- and post- assessment measure for this lesson to assess

student understanding of lesson objectives.

Teachers will draft a scoring rubric to score pre- and post- assessment measures.

Agenda:

### (3:30pm - 4:15pm) - Peer Collaboration

 Participants collaborate with peers, discussing lesson ideas with same- and cross-discipline teachers.

(3:30pm - 3:50pm): Within discipline

Math teachers work with Math teachers, Science teachers work with Science teachers

(3:50pm - 4:15pm): Cross discipline

Math teachers and Science/Technology teachers pair up and work together

### (4:15pm – 5:15pm) – Drafting Lesson Plans

Participants complete drafts of lessons on MSTP templates.

### (5:15pm - 6:00pm) - Drafting Assessment Measures and Scoring Rubrics

 Participants develop draft pre- and post- assessment measures and a draft scoring rubric.

### **To All District Participating Teachers:**

During the next 2 weeks, you are to implement the lesson plan that you drafted here today.

Assessment measures should be administered to students. Student work should be collected and scored

and 3 samples should be brought to Workshop (B) (good, passable, poor).

Immediately, following lesson implementation, please note immediate reflections in the space provided at the end of the MSTP lesson plan template, using the Immediate Reflection Prompts as a guide. Please note that our next meeting (Workshop "B") will be on (insert date).

Please make sure to bring a copy of each of the following, to facilitate the next phase of our work:

- Your implemented <u>lesson plan</u> (on the MSTP template) with <u>immediate reflections</u> noted
- Each of your assessment measures (pre- and post-)
- Scoring rubrics
- Copies of sample <u>student work</u>

### SAMPLE Agenda WORKSHOP (B) – (any date)

District/School:

xxxxxxx District - Main St Middle School

Date/Time:

month day, (3:30pm - 6:00pm)

Workshop

**Objectives:** 

Teachers will revise lesson plans, assessments and rubrics, based upon evidence available, from lesson implementation, reflections notes, student work collected and scored, and peer collaboration.

Teachers will complete a brief feedback form on the process and outcomes of the A/B workshops.

Agenda:

### (3:30pm - 4:30pm) - Peer Collaboration

 Participants collaborate with peers, discussing lesson implementation and examining sample student work, with same- and cross-discipline teachers.

(3:30pm - 3:50pm): Within discipline

Math teachers work with Math teachers, Science teachers work with Science teachers (3:50pm - 4:15pm): Cross discipline

Math teachers and Science/Technology teachers pair up and work together

# (4:30pm – 5:45 pm) – Revising Lesson Plans, Assessments, Measures, & Scoring Rubrics

- Participants complete revisions of lessons on MSTP templates, using all collected evidence as support for revisions (including, notes on implementation, student work, peer reviews, etc.).
- Participants revise pre- and post- assessment measures and scoring rubrics, again using all collected evidence as support for revisions (including, notes on implementation, student work, peer reviews, etc.).

### (5:45pm - 6:00pm) - Feedback Forms

 Participants complete a brief Teacher A/B Workshop Feedback form to document insights about the A/B workshop process and its outcomes and impacts.

### To All Participating Teachers:

Please note that our next meeting (Workshop "A") will be on (date), .

Please make sure to bring with you an existing lesson plan that you would like to develop for the next month's A/B workshops. This should be either a Math lesson you would like to enhance, or a Science lesson that you would like to infuse with more Math.

### **Immediate Reflection PROMPTS**

Some points to consider while reflecting on the implementation of your MSTP lesson:

### Teaching the lesson:

- Were students engaged in the lesson? Were students' questions relevant and appropriate?
- Did students understand what was expected of them during the lesson?
- Were lesson procedures detailed enough?
- Do the embedded assessments fit within the lesson?
- Was there sufficient time to complete the lesson?

### Student perceptions and learning of Math:

- Did students recognize the importance of the Math concept(s)? Were students able to verbalize the Math concept(s) being taught?
- Did students have adequate previous knowledge and skills to do the Math?
- To what extent do you think that students understood the Math concept being taught? The Science concept? Why do you think this?
- Do you believe students will be able to apply the Math concept after the class?

### Revisions to the lesson:

- What about the lesson plan needs to be changed? Why?
- How would you teach the lesson differently next time?

## MSTP Teacher A/B Feedback Form

Please consider your experience this month in both the (A) and (B) workshops, as well as in developing, implementing, and revising your lesson plans, assessments, and rubrics.

Please keep all responses anonymous.

District:		
Which subject(s) do you teach?		
What did you like and dislike about the A/B Workshop process this month?		
How helpful was the peer collaboration/review? Did it help you to choose a top appropriate pedagogy?	oic for your le	esson? To plan
Did spend enough time working with teachers from your own discipline?	☐ Yes	□ No
with teachers from other disciplines?	□ <b>V</b>	
Please explain.	☐ Yes	i □ No
Did you create a new lesson or adapt one you've used in the past?  □ Created a new lesson	new 🏻 Ad exi	apted an sting lesson
Were you able to use the lesson template to create a successful lesson that incluand/or that infused Math into Science/Technology?  Please explain.	uded enhance	
Did you implement this lesson in whole?	☐ Yes	s 🗆 No

Based on your experiences implementing the lesson, did students develop deeper un concepts covered?	derstandin	g of the
Please explain.	☐ Yes	$\square$ No
Based on the rubric you developed, what proportion of your students scored at each	of the follo	owing levels?
"Good" % "Passable" % "Poor" %		
Did you use assessment data (i.e., collected student work) to revise your lesson plan Yes No	?	
What revisions did you make? based on what evidence (student work, insights/refle	ctions, etc.)	?
How likely are you to use this lesson (as adapted for MSTP) again?  ☐ Definitely Not ☐ Probably Not ☐ Maybe ☐ Probably	☐ Definit	ely
Overall, how useful were the A/B workshops?  □ Not at all Useful □ Somewhat Useful □ Very Useful		

Please feel free to add any additional comments below.

## MSTP CSST A/B Synthesis & Summary

Please complete this summary form as a team (CSST) at your (B1) end-of-month meeting, using observations, teacher packets, and Teacher A/B feedback forms as evidence.

Today's	Date:	_/_	/		Dist	rict:	<del></del>
				Workshop	Feedback		
Re: WC	RKSHO	P (A)					
When w	as Worksh	op (A	A) held?	Date:/	/		
How ma	ny teacher	s atte	ended Works	<b>hop (A)?</b> Math _	Science _	Technology	Other
•			ation (as a lea Workshop?	ndership team), d	id it seem that	teachers understood th	he "process
	☐ Not at	all	☐ A little	☐ Somewhat	☐ Mostly	$\Box$ Completely	
	Did Science Did Math te Did teachers	s come /Tech achers s revis	e in to (A) with on no in to (A) with on no in to (A) with on no in to (A) with on the interval in to (A) with on the interval in the interval		ther to develop the lanning appropriate and collaboration	neir lessons?	
P	lease Expl	ain.					
Was the	re enough	time	in Workshop	(A) to get everyt	hing done? W	hat was left out?	
Is there	anything <u>A</u>	VOT v	vorking? Wh	at? Why? How c	an it be fixed?		
Overall,	how succe □ Poor	ssful	was Worksh	op (A)? (from a C		s)  Excellent	
······	^^~~	^~~		e attach your agen	•		······

Re: WORKSHOP (B)	OVER			
When was Workshop (B) held? Date:/				
How many teachers attended Workshop (B)? Math Science Technology O	other			
In your collective estimation (as a leadership team), did it seem that teachers understood the "jand purpose" of the (B) Workshop?	process			
☐ Not at all ☐ A little ☐ Somewhat ☐ Mostly ☐ Completely				
Questions to consider:  Did teachers come in to (B) with meaningful samples of student work? ☐ Yes ☐ No Did teachers revise their lessons based on implementation successes/challenges and via peer review? ☐ Yes ☐ No Did teachers offer each other rich feedback? ☐ Yes ☐ No				
Please Explain.				
Was there enough time in Workshop (B) to get everything done? What was left out?				
Is there anything <u>NOT</u> working? What? Why? How can it be fixed?				
Overall, how successful was Workshop (B)? (from a CSST consensus)  □ Poor □ Fair □ Good □ Very good □ Excellent				
In general, does it seem teachers have "bought in" to the A/B process and the MSTP project?	Explain.			