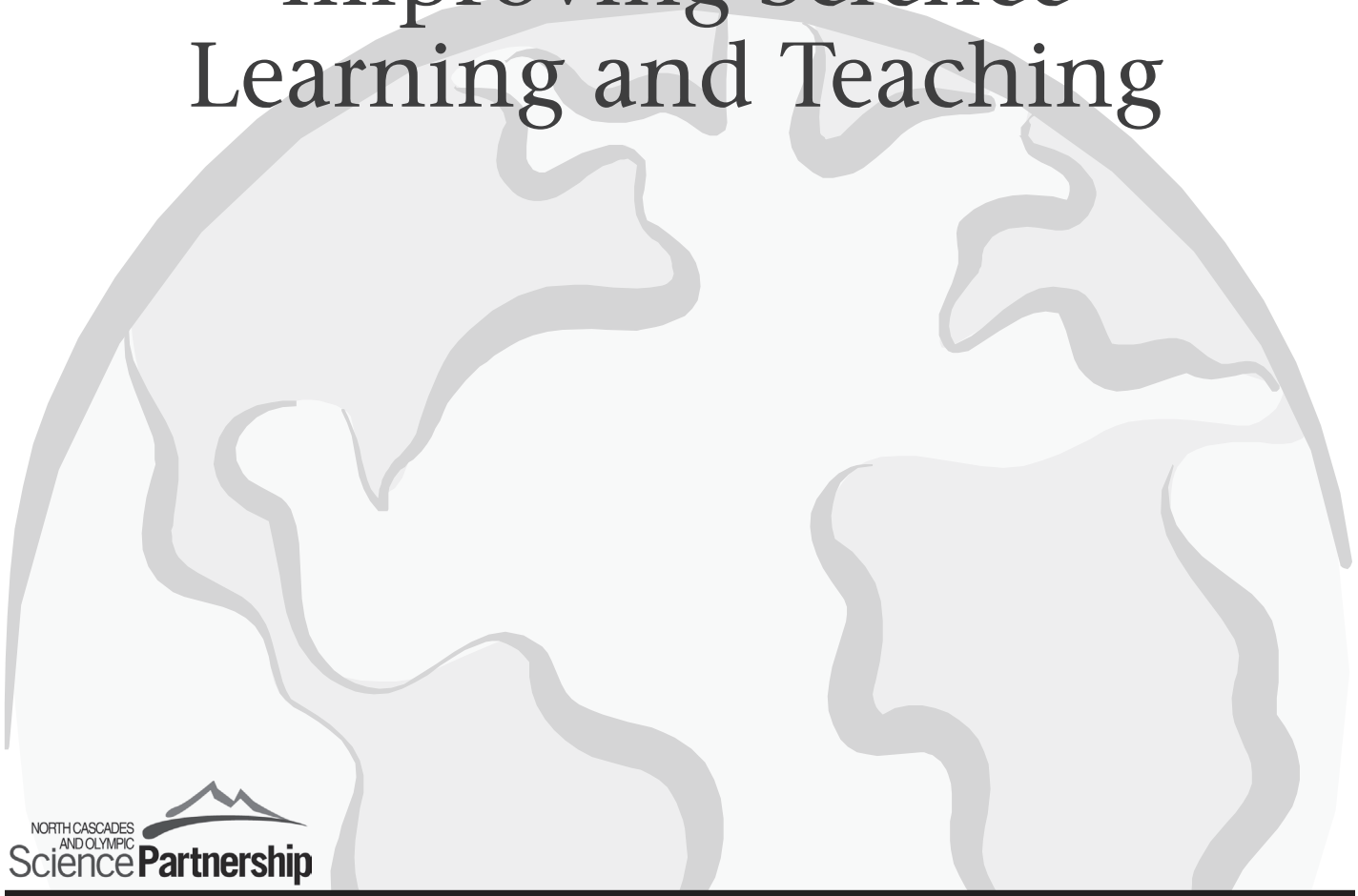
District Action Planning Tool

Improving Science Learning and Teaching



NORTH CASCADES AND OLYMPIC Science Partnership

Advancing science learning and teaching for all

"Student aspirations, after all, are the source and substance of dreams and achievement."
– Quaglia

GOALS / PURPOSE

The NCOSP District Action Plan is the centerpiece of the "Planning for Continuous Improvement" strand of the 2006 Summer Academy and supports three key goals:

- Deepen understanding of ways to strategically use data to inform district decisions and monitor improvements.
- Increase cross-grade level collaboration on science education reform.
- Strengthen collaboration among teacher leaders, principals, and district administrators.

During planning sessions District Teams will carefully consider how they can strategically apply their knowledge and skills within their district context. District teams will be supported in a data-driven planning process to align proposed activities with real, verifiable problems that Teacher Leaders have the potential to influence. The product of these planning sessions will become your roadmap for your own professional development, as well as the professional development you will support in your building and district next year. Every district – and every Teacher Leader – will have a slightly different plan based on their unique knowledge, skills, and context. Nonetheless, each will have a plan that indicates what roles and responsibilities they will embrace.

Works Cited

Love, N. (2002). Using Data-Getting Results: A Practical Guide for School Improvement in Mathematics and Science. Norwood, MA: Christopher-Gordon Publishing.

Bransford, J.D., Brown, A.L, & Cocking, R. R. (Eds). (2000). How people learn – Brain, mind, experience, and school. Washington, DC: National Academy Press.

Garmston, R.J. & Wellman, B.M. (1999). The Adaptive School: A Sourcebook for Developing Collaborative Groups. Norwood, MA: Christopher-Gordon Publishers, Inc.

District and Teacher Leader Action Plans and NCOSP responsibilities

Together the District and Teacher Leader Action Plans generated by this tool will clarify the roles and responsibilities of Teacher Leaders, Principals, and District Administrators during the next school year. These plans will define how release time, NCOSP resources and district resources are used to fulfill goals to improve student learning in science.

SUPPORTING DISTRICT AND INDIVIDUAL ACTION PLANS

TOSA support for Teacher Leaders and Principals in each building will be provided based on the Teacher Leader Action Plans.

Follow-up sessions for Teacher Leader-Principal teams will be provided during fall and spring quarter of the 2006-07 school year to review the District and Teacher Leader Action Plans, monitor progress, and assess impact. *See dates below.*

MONITORING DISTRICT AND INDIVIDUAL ACTION PLANS

Activity Logs submitted by Teacher Leaders for billing purposes must be linked directly to goals and activities listed in the District and Teacher Leader Action Plans. ***District invoices will not be approved without a district action plan on record***.

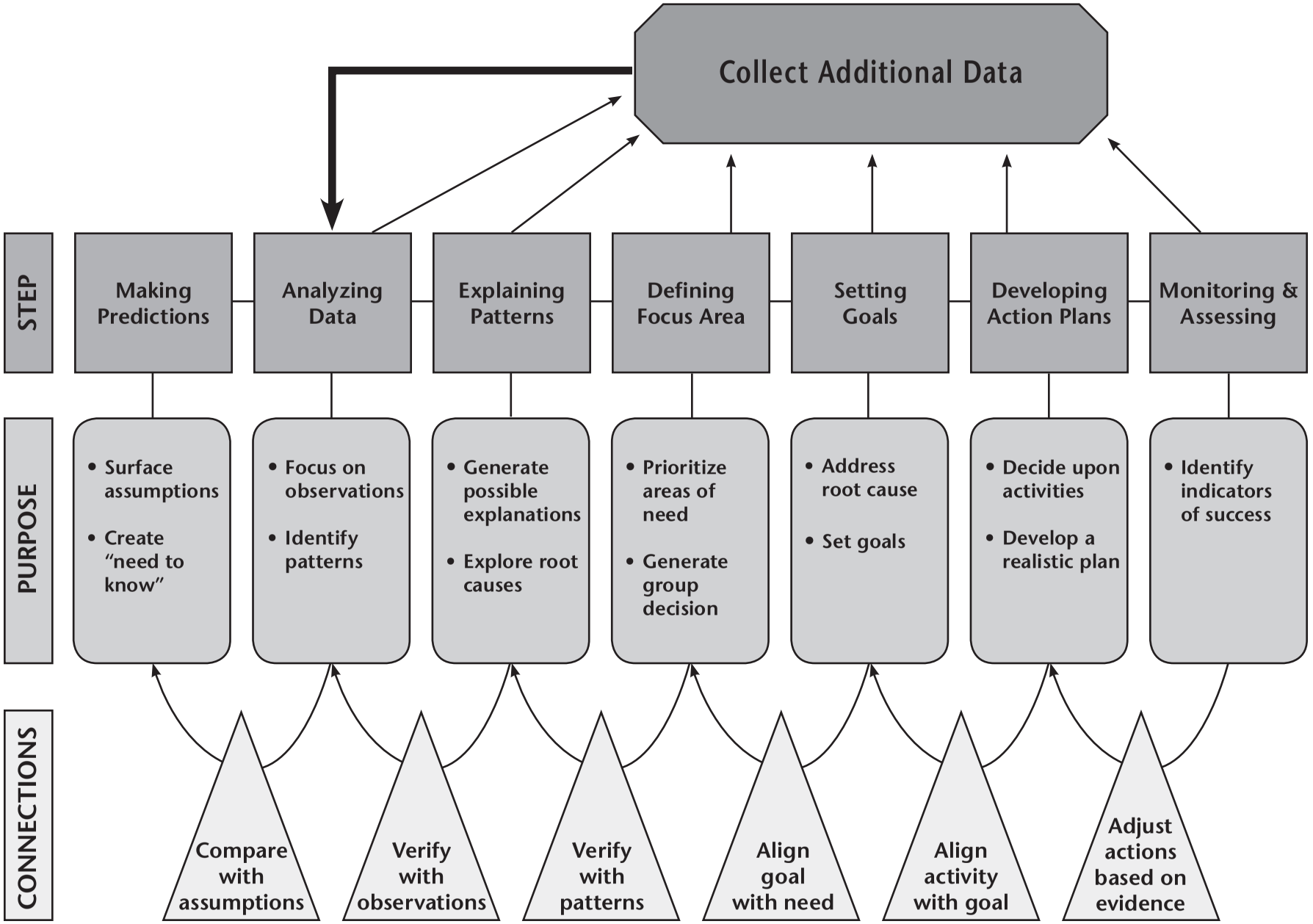
Biannual Reports submitted by both Teacher Leaders and Administrators will be required to document progress so that all can learn from the activities taking place in all partner districts.

Note: This District Action Planning Tool is not meant to replace existing school plans. (School Improvement Plans, LASER, Lesson Study, etc.)

DISTRICT AND TEACHER LEADER ACTION PLAN TIMELINE

Aug. 11, 2006	Draft of District and Teacher Leader Action Plans developed.
Sept. 22, 2006	Action Planning Sessions offered in regional locations.
Sept. 29, 2006	District Action Plans submitted to NCOSP.
Sept. – Dec., 2006	Teacher Leader Activity Logs document progress on activities in District and Teacher Leader Action Plans.
Nov. 16, 2006	First biannual Teacher Leader-Administrator Symposium to monitor and revise Action Plans.
Dec., 2006	Progress reports on Action Plans submitted to NCOSP.
Jan. – Mar., 2007	Teacher Leader Activity Logs document progress on activities in District and Teacher Leader Action Plans.
Mar. 27, 2007	Second biannual Teacher Leader-Administrator Symposium to monitor and revise Action Plans.
Apr., 2007	Progress reports on Action Plans submitted to NCOSP.
Apr. – Jun., 2007	Teacher Leader Activity Logs document progress on activities in District and Teacher Leader Action Plans.

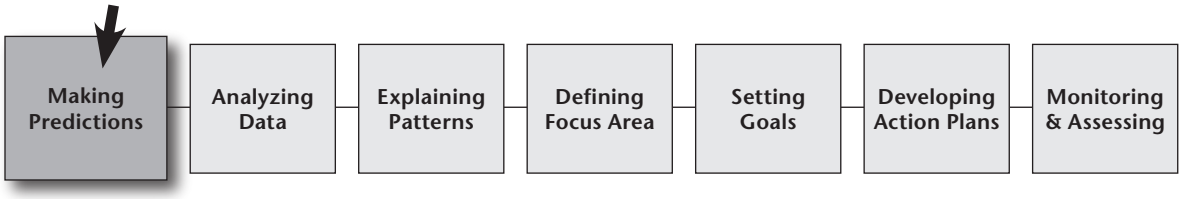
NCOSP District Action Planning Overview



District Action Plan Self Assessment

	YES	NO	COMMENTS/ QUESTIONS
ANALYZING DATA			
1. Is there a data source to support each observation?			
2. Do the narrative statements reflect what is seen in the data, without offering "why" or "what to do about it"?			
3. Were there multiple observations for each pattern or theme identified?			
EXPLAINING PATTERNS			
4. Were root causes explored for each patterned identified?			
5. Were multiple explanations or causes discussed for each pattern identified?			
DEFINING FOCUS AREA			
6. Were the proposed causes for each pattern supported by observations recorded in narrative statements?			
7. Are Teacher Leaders able to have a positive and significant influence on the cause of the problem identified?			
8. If the cause of the problem identified were addressed would there be a positive and significant impact on student outcomes?			
9. Is there strong justification for the selected focus area?			
10. Is there evidence of group consensus in support of the selected focus area?			
SETTING GOALS			
12. Are the goals well supported by the observations recorded in the narrative statement?			
13. Are the goals specific and clearly stated?			
14. Are the goals measurable?			
15. Are the goals realistic given the time and resources available?			
16. Are the goals connected to student outcomes?			
DEVELOPING ACTION PLANS			
17. Are the activities planned consistent with the recommendations in *How People Learn*?			
18. Are the activities well matched to the needs and level of readiness for the intended audience?			
19. Are the resources required for the proposed activities available?			
20. Is the proposed timeline for implementation realistic?			
21. Are there clear and appropriate roles assigned to both Teacher Leaders and Administrators for each activity?			
22. Is there a plan for collecting data to monitor the effectiveness of the Action Plan?			

I: Making Predictions and Assumptions



Making predictions is an important step in the collaborative process that should precede looking at data. In this step, the focus is on generating predictions about what the data might show. This is the time for participants to activate prior knowledge, surface assumptions, and make predictions to create readiness to talk about data. After looking at the data, it is useful to return to the predictions made by group members and consider the extent to which they were supported by the data.

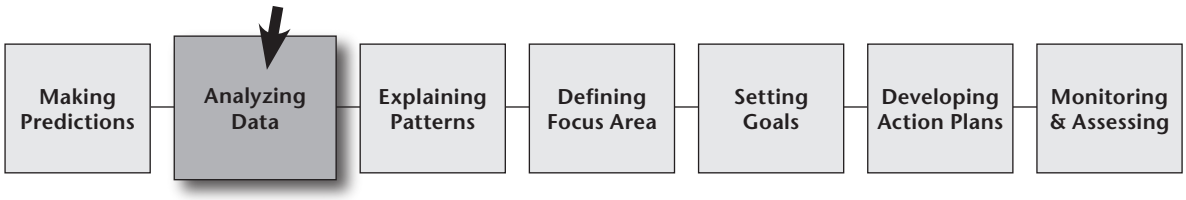
1) In the next step of the planning process you will be given a variety of data sources to provide insight into your district science education program. The data sources may include:
   a. Student WASL scores
   b. Teacher perception data on student learning challenges
   c. Teacher Leader participation in NCOSP activities
   d. Administrator participation in NCOSP activities
   e. District science program assessment using LASER rubrics
   f. District K-12 curriculum sequence
   g. District science strategic plans from LASER
   h. Additional data

2) Given your prior experience in your school and district, record your predictions or assumptions about the current state of science teaching and learning in your school or district. Write your individual predictions below. Your individual predictions won't be shared at this time but in a future group discussion.

Example:
"Students in elementary school struggle with science and perform poorly on the WASL."

"Science curriculum varies by classroom and building throughout the district."

II: Analyzing Data



Data are the essential pieces of information needed to better understand and solve problems. Data may be collected formally through surveys or standardized assessments, but may also be collected more informally through conversations with peers or observations. Data can be either qualitative (narrative rather than numbers) or quantitative (take numerical form). The appendix in this tool contains further information about types of data.

A. MAKING OBSERVATIONS

An observation is an act or instance of viewing or noting fact. For example: "25% of Teacher Leaders attending Summer Academy wear shorts each day."

Writing Narrative Statements (i.e. Observations):

- Describe what is seen in the data without "why" or "what to do about it"
  EX: "38% of parents state they do not receive information about ways to help their children learn at home."
- Communicate a single idea about student performance
  EX: "8th grade science achievement on the WASL increased 34% between 2003-2004."
- Are short and easy to read
  EX: "The number of English Language Learners at our school increased from 25 to 45 between 2005 and 2006."

1) Look at the information included in the first data set in the packet provided for your district.

2) Have each team member review the first data set only and individually write "Narrative Statements" of what is observed in the data on Post-it notes. **Write only one narrative statement on each Post-it.**

3) Have all team members place their Post-it notes with their "Narrative Statements" in a group area.

PLC ALERT! Beginning with student data is one way to ensure team work is focused on student outcomes.

CHECK WITH YOUR FACILITATOR BEFORE MOVING ON

4) Now have each team member look at the remaining data provided for your district. Repeat steps 2 and 3 above for each remaining data set.

5) Generating Group Narrative Statement Sheets:
   a. As a team, look at your Post-it notes of narrative statements. Combine statements with significant overlap or redundancy into one common narrative statement.

   b. Have the recorder use the "Group Narrative Statement Sheet" in the electronic template to record a team list of all narrative statements (unique, individual statements and combined statements) for all of the data. This sheet will serve as a record of your observations for future reference for your team.

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Group Narrative Statement Sheet

DATA SOURCE	NARRATIVE STATEMENT

B. IDENTIFYING PATTERNS OR THEMES IN YOUR STUDENT DATA:

1) Identifying patterns or themes in your data.
   a. As a team, look at the narrative statements written on your Post-it notes. Sort the Post-its into broad categories.
   EX: " Administrative Support/Involvement."

   b. Label a sheet of chart paper with an appropriate title for each broad category your team identified. Place the relevant Post-its on the paper in preparation for the Gallery Walk described below.

   c. Generate one or two summary statements based on patterns or themes revealed by your observations underneath the corresponding Post-it notes.
   EX: "Administrator support and awareness of science education reform activities is limited."

Remember to remain focused on what is seen in the data without discussing why or what to do about it.

C. GALLERY WALK:

1) Post your charted Narrative Statements and Patterns or Themes. Then, take time to walk through the room. As you look at other districts' work make a note of:

   a. districts with similar struggles
   b. districts who are having success in areas where you struggle
   c. districts that have looked at their data in different ways than you have

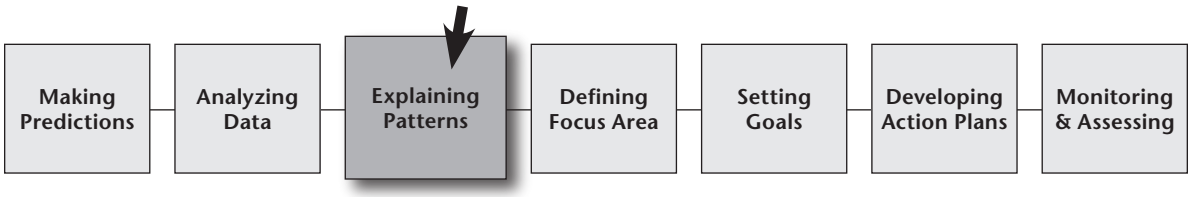
PLC ALERT!
Gallery walks are one way to deprivatize practice.

2) Discuss your gallery walk observations with your group.

3) Reflect on your individual predictions and assumptions. How do they compare to the patterns or themes identified in your data packet? Did you notice anything surprising or unexpected? Discuss your findings with your group. Were there significant differences or similarities between team members?

NOTES:

III: Explaining Patterns and Themes



When dealing with a lot of data a useful first step is to simply scan the information to get a sense of the big picture, identifying important patterns or themes. The next step is to systematically analyze possible causes or explanations for the patterns that surfaced. This analysis will get at the heart of what factors are responsible for those patterns and lead the way to designing effective solutions to problems.

A. GENERATING POSSIBLE ROOT CAUSE/REASONS FOR WHY A PATTERN EXISTS

The "Explaining Patterns and Themes" worksheet will help your team use data to interpret the patterns or themes you see in your data. Root cause should be supported by data, should be within the power of the Teacher Leader to change and this change should impact student learning of science.

1) **Pattern or Theme Column**: Individually record the pattern or theme from each of the broad categories in Step II here. Make sure your recorder enters these in the electronic template, as well.

2) As a team, brainstorm possible causes or explanations for one of the patterns or themes you observed. List these on chart paper.

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3) **Root cause Column**: Individually record your group's list of possible root causes here. Make sure everyone on your team has the same list. Record in the electronic template.

4) Complete the "Explaining Patterns and Themes" worksheet with your remaining patterns or themes. *Do not complete the "Evaluate" columns at this time.*

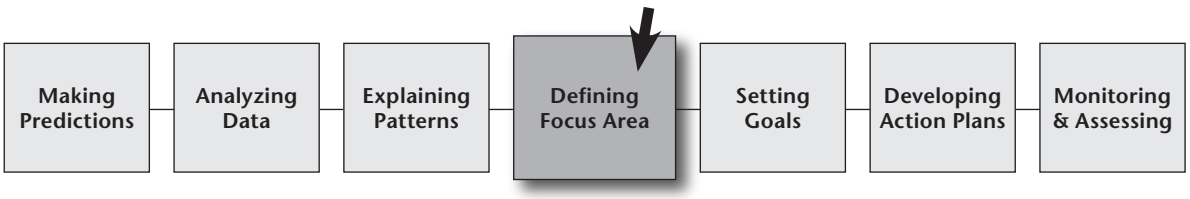
CHECK WITH YOUR FACILITATOR BEFORE MOVING ON

NOTES:

Explaining Patterns and Themes

PATTERN OR THEME	POSSIBLE ROOT CAUSES	EVALUATE		
		Verifiable: Explanation could be supported by data	Doable: Within the power of the Teacher Leader to change	Critical: Greatest impact on student's science learning (if addressed)
A	1.			
	2.			
	3.			
	4.			
	5.			
	6.			
B	1.			
	2.			
	3.			
	4.			
	5.			
	6.			
C	1.			
	2.			
	3.			
	4.			
	5.			
	6.			
D	1.			
	2.			
	3.			
	4.			
	5.			
	6.			

IV: Defining Focus Areas



On the "Explaining Patterns and Themes Worksheet" your team developed you will evaluate each cause based on how verifiable, doable and critical it is. Use the "Guided Discussion Protocol" (to be distributed) to help you decide which root cause will become the focus for your District Action Plan.

A. EVALUATING POSSIBLE ROOT CAUSE:
Have each team member individually complete the "**Evaluating Root Cause Column**" on the Patterns and Themes Worksheet.

1) **Verifiable Column**: Look at the root cause generated by your group. Now use your narrative statements to individually score the root cause as to how well supported they are by the data on a scale from one to five where:
   a. 5 = Multiple narrative statements fully support the proposed root cause
   b. 3 = At least one narrative statement provides partial support for the proposed root cause
   c. 1 = No narrative statements currently available verifies the proposed root cause
   (If you give a ranking of 1 be ready to discuss the following with your team during "Guided Discussion.")
      i. What assumption(s) led to the proposed root cause?
      ii. How trustworthy is that assumption?
      iii. What data would validate that root cause?

2) **Doable Column**: Individually score the root cause with respect to the ability of the Teacher Leader to influence or change them on a scale from one to five where:
   a. 5 = Teacher Leader has significant ability to influence the proposed root cause
   b. 3 = Teacher Leader has limited ability to influence the proposed root cause
   c. 1 = Teacher Leader has no ability to influence the proposed root cause

3) **Critical Column**: Individually score the root cause with respect to their likelihood to have a positive impact on student learning on a scale from one to five where:
   a. 5 = Addressing this root cause is highly likely to increase student learning
   b. 3 = Addressing this root cause is somewhat likely to increase student learning
   c. 1 = Addressing this root cause is unlikely to increase student learning

B. DEFINING FOCUS AREAS
Individually review the root causes. Choose one or more root causes you would like to recommend become the focus of your district goals. You may choose multiple causes from one pattern or theme or one cause from among two or more patterns. Note your choice and rational on the Guided Discussion Protocol Note Sheet.

1) Use the "Guided Discussion Protocol" to understand the recommendation made by each member of your group. You may wish to take notes during your discussion.
2) Based on your discussion, come to a group consensus on **<u>no more</u> than 2 or 3** recommendations. These will become the focus for the goals of your team's NCOSP District Action Plan.

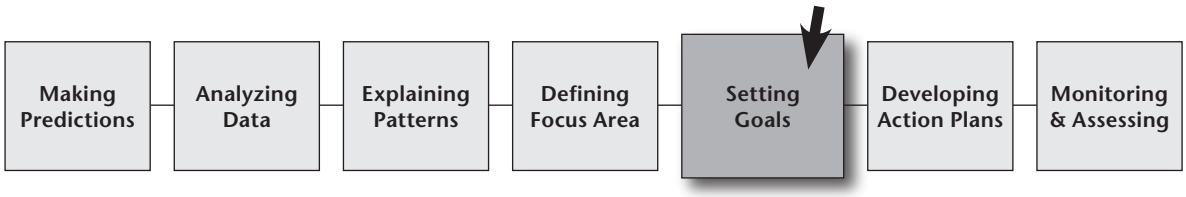
CHECK WITH YOUR FACILITATOR BEFORE MOVING ON

Seven Norms of Collaboration:

1. Pausing
2. Paraphrasing
3. Probing for specificity
4. Putting ideas on the table
5. Paying attention to self and others
6. Presuming positive intentions
7. Pursuing a balance between advocacy and inquiry.

For more info, see The Adaptive School pp. 37-47.

V: Setting Goals



Decisions about school science improvement goals and solutions must be based on careful consideration of multiple sources of data and research. Having clear goals is indispensable to accomplishing desired outcomes.

For more detail on SMART goals check *Adaptive Schools* pg. 141.

PLC ALERT!
Goal setting helps to establish shared norms and values.

A. GOAL SETTING

1) Select one recommendation chosen by your team during the guided discussion.
2) Use the "Goal Writing Worksheet," to write a SMART goal based on this recommendation. SMART goals are:
   a. **Specific**: Describe the presence of a quality not the absence; not "we want less of" but "we want more of."
   b. **Measurable**: State something that is achieved not something that is provided.
   c. **Attainable**: The outcomes can be attained with the time and resources (human, material, financial) available.
   d. **Relevant**: The outcome is related to the larger purpose of advancing science learning and teaching for all.
   e. **Tactically Sound** - Identify possible unintended consequences that could result if the goal were attained.
3) Use the "Goal Review" questions to help you examine the quality of your goals. Answer each question under your goal statement. Make revisions to your statement if necessary.

CHECK WITH YOUR FACILITATOR BEFORE MOVING ON

4) Develop a SMART goal for your remaining recommendations.

NOTES:

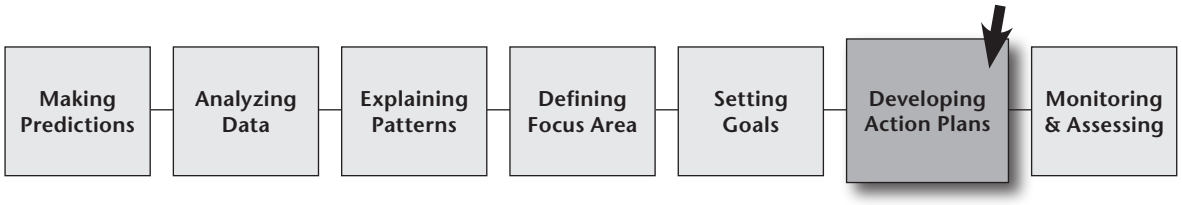
Goal Writing Worksheet

GOAL STATEMENT:			
GOAL REVIEW QUESTIONS:	**YES**	**NO**	**NOTES**
Is the goal specific and clearly stated?			
Is the goal measurable?			
Is the goal based on data?			
Is the goal related to student learning?			
Is the goal time bound?			
MAKE REVISIONS TO YOUR GOAL IF YOU ANSWERED “NO” TO ANY QUESTIONS.			

GOAL STATEMENT:			
GOAL REVIEW QUESTIONS:	**YES**	**NO**	**NOTES**
Is the goal specific and clearly stated?			
Is the goal measurable?			
Is the goal based on data?			
Is the goal related to student learning?			
Is the goal time bound?			
MAKE REVISIONS TO YOUR GOAL IF YOU ANSWERED “NO” TO ANY QUESTIONS.			

GOAL STATEMENT:			
GOAL REVIEW QUESTIONS:	**YES**	**NO**	**NOTES**
Is the goal specific and clearly stated?			
Is the goal measurable?			
Is the goal based on data?			
Is the goal related to student learning?			
Is the goal time bound?			
MAKE REVISIONS TO YOUR GOAL IF YOU ANSWERED “NO” TO ANY QUESTIONS.			

VI: Developing a District Action Plan



The Action Plan is the team's commitment to act based on their data. Introducing change into the busy, complicated school system requires carefully thought-out and articulated plans. This stage of planning gives your team a chance to really think through how to bring to life the research-based strategies you have been learning about through NCOSP. **This is a journey of continuous improvement and the plan is the road map for ongoing discourse on improving student learning in science.**

A. BRAINSTORMING POSSIBLE ACTIVITIES

The "Reality to Future" chart will help you brainstorm and evaluate possible activities to reach your goal.

1) As a group, choose 1 of your goals:
   a. **Current Reality Square**: Write a root cause you selected during the guided discussion here.
   b. **Preferred Future Circle**: Write an abbreviated version of the goal in the circle in the upper right.
2) Individually brainstorm a list of potential improvement activities that relate directly to the goal and take into consideration the needs identified by your data. The NCOSP tool sheet can be used to help generate possible activities.
3) List individual activities on separate Post-it notes, place them on the Reality to Future Chart.
4) When you have completed your individual brainstorming, share your ideas with your team.

REMINDER! This is a brainstorming activity. This is not the time to evaluate or sequence the activities.

B. EVALUATING POSSIBLE ACTIVITIES

1) Evaluate the possible activities by discussing the following questions as a group:
   a. Is this activity consistent with best practices? (*How People Learn*; See Appendix p.24)
   b. Have we considered whether participants are ready for and willing to take part in the suggested activities?
   c. Do we have the time and financial resources to accomplish this goal?
   d. Do we have access to knowledge and materials to implement the activity (e.g. NCOSP tools)?
2) Modify or eliminate any activities that do not meet the above criteria.

HINT! Look over the NCOSP TOOLS sheet for possible activity ideas.

C. SEQUENCING ACTIVITIES

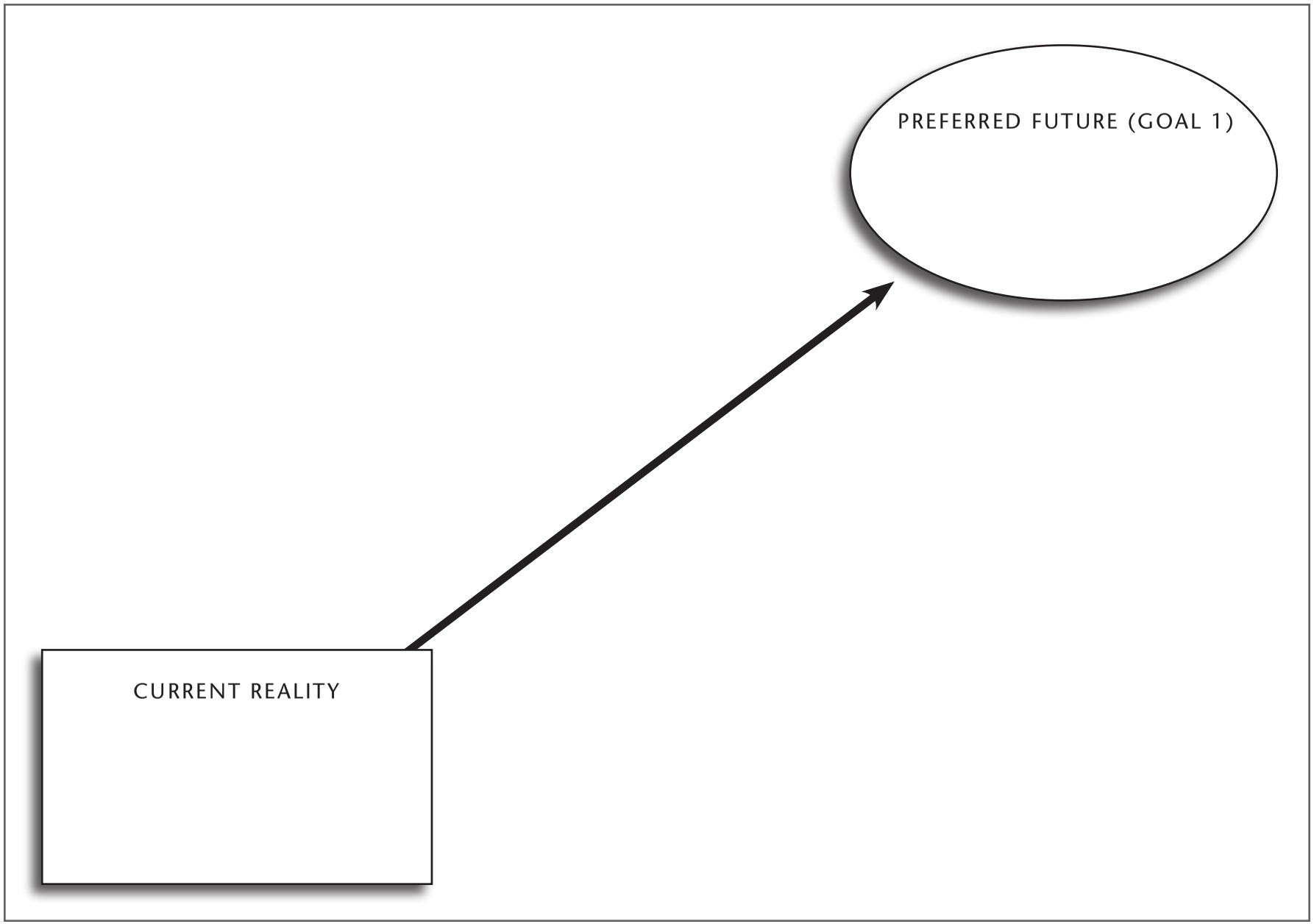
1) Move the Post-it notes around on the worksheet to determine the order in which your team will implement the activities.
2) Add additional activities to fill in any gaps that your team identifies. *These activities will become the foundation for your NCOSP District Action Plan.*

CHECK WITH YOUR FACILITATOR BEFORE MOVING ON

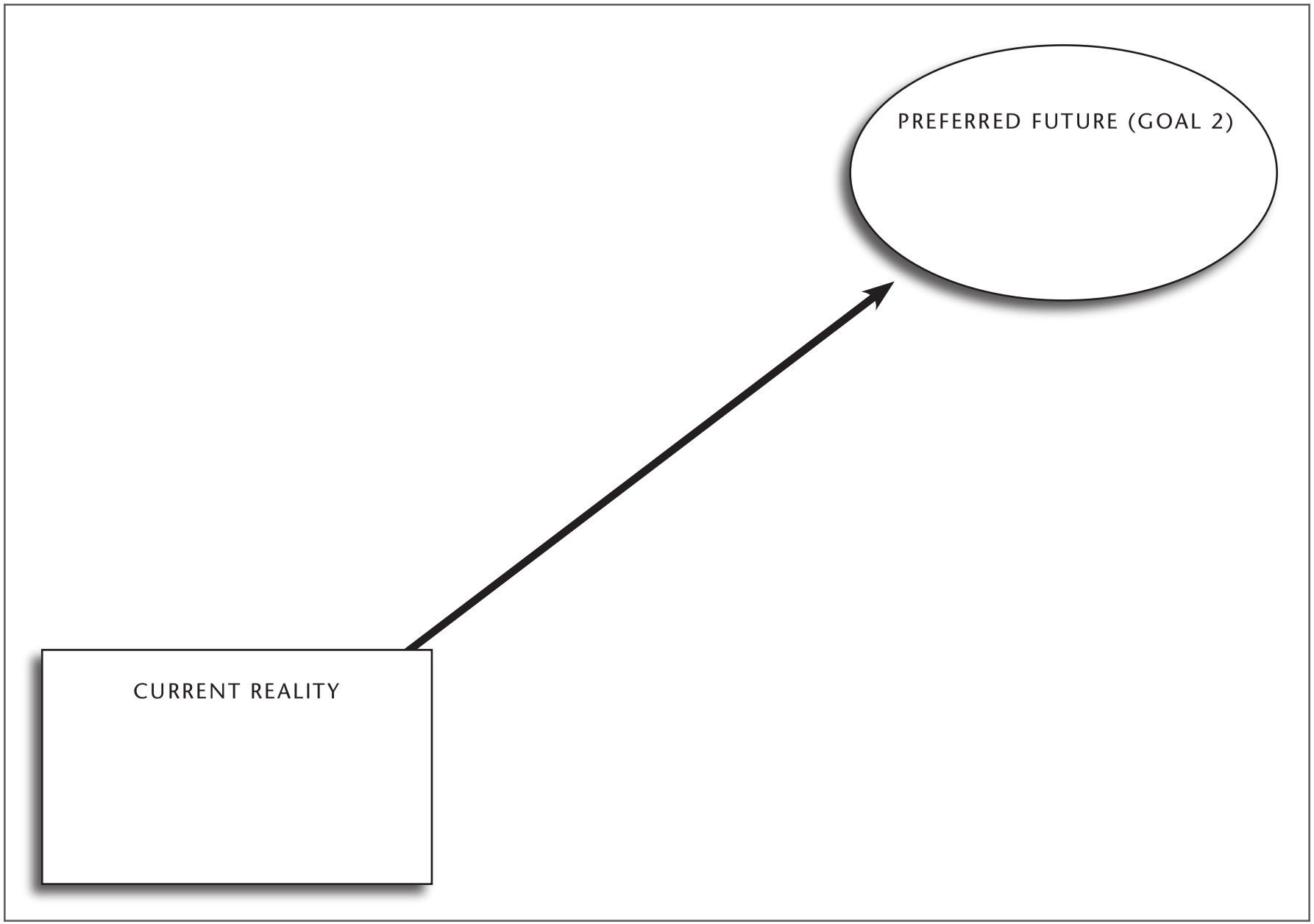
PLC ALERT! Carefully designed activities are one way to promote collaboration.

D. COMPLETE A REALITY TO FUTURE CHART FOR EACH OF YOUR REMAINING GOALS

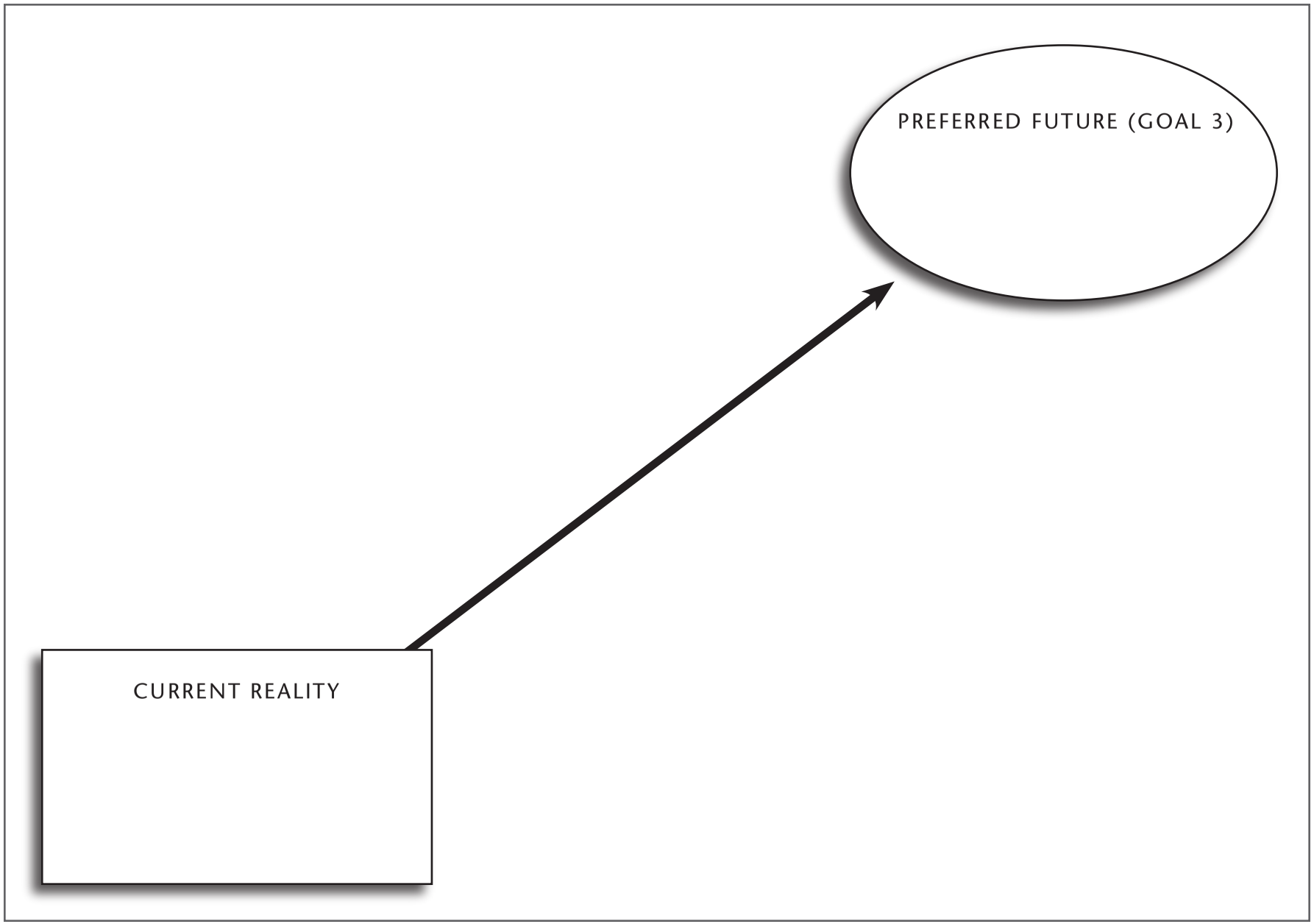
Reality to Future Chart



Reality to Future Chart



Reality to Future Chart



E. WRITING A DISTRICT NCOSP ACTION PLAN

The plan should give you clarity in your Teacher Leader actions. It will become your official NCOSP District Action Plan, defining how you will use your release time, NCOSP resources and additional district resources to fulfill your responsibilities as Teacher Leaders. It should also identify appropriate roles for principals and other district administrators that will help ensure successful, collaborative implementation.

1) Working as a team, complete an "NCOSP District Action Plan" for your first district goal. Have the recorder enter your plan in the electronic template.
   a. **Activities Column**: List activities from your "Reality to Future" chart in the activities column.
   b. **Timeline Column**: Make sure each activity has a clear timeline within the 2006-07 school year for completion.
   c. **Resources Column**: List available resources that will help you with this activity. Consider time, personnel, materials, money, knowledge or expertise. If your team identifies resources that are still needed, be sure your plan includes a strategy for finding those resources or a back-up activity if these resources will not be available.
   d. **Person Responsible Column**: Make sure one Teacher Leader or administrator is responsible for each activity.
   e. **Indicators Column**: Begin to consider what data you will collect in order to evaluate the effectiveness of your plan.

 *CHECK WITH YOUR FACILITATOR BEFORE MOVING ON*

2) Complete an "NCOSP District Action Plan" for each remaining goal. Have the recorder enter the rest of your plan in the electronic template.

F. WRITING NCOSP TEACHER LEADER ACTION PLANS

TOSA support for each Teacher Leader will be provided based on this plan. Follow-up sessions will provide opportunities for monitoring progress and assessing impact of this plan. Teacher Leader's Activity Logs submitted during the year should be linked to activities in this plan.

1) Each Teacher Leader will need to complete a Teacher Leader Action Plan and enter it into the electronic template.
   a. **Goal Column**: Write each district goal into your Teacher Leader Action Plan. If a related personal goal would help you implement the district plan you may want to include it here.
   b. **Activity Column**: List any activities from the District Action Plan designated as your responsibility.
   c. **Timeline Column**: Establish a clear timeline for each activity (you may find it is helpful to break your activities down into steps).
   d. **Resources Column**: List any resources you will be accessing to accomplish these activities.
   e. **Outcomes Column**: This will be filled in throughout the year with your TOSA as you complete your Teacher Leader Action Plan.

 *CHECK WITH YOUR FACILITATOR BEFORE MOVING ON*

G. WRITING NCOSP ADMINISTRATOR ACTION PLANS

1) Each Teacher Leader will need to work with their Administrator to complete an Administrator Action Plan and enter it into the electronic template. Make an appointment with your building principal early in the school year to be sure you have all plans completed and submitted by the September 29th deadline. Follow the same instructions used to complete the Teacher Leader Action Plan when working with your administrator.

REMINDER! THERE WILL BE A DISTRICT NCOSP ACTION PLANNING SESSION ON SEPTEMBER 22, 2006.

NCOSP District Action Plan – Goal 1

GOAL 1 STATEMENT:

ACTIVITY	TIMELINE	RESOURCES	PERSON RESPONSIBLE	INDICATORS What data will you collect to measure if your activity had the intended impact on the goal?

NCOSP District Action Plan – Goal 2

GOAL 2 STATEMENT:

ACTIVITY	TIMELINE	RESOURCES	PERSON RESPONSIBLE	INDICATORS What data will you collect to measure if your activity had the intended impact on the goal?

NCOSP District Action Plan – Goal 3

GOAL 3 STATEMENT:

ACTIVITY	TIMELINE	RESOURCES	PERSON RESPONSIBLE	INDICATORS What data will you collect to measure if your activity had the intended impact on the goal?

NCOSP Teacher Leader Action Plan

GOAL	ACTIVITY/ACTIONS	TIMELINE	RESOURCES	OUTCOMES (indicator data collected)

NCOSP Administrator Action Plan

GOAL	ACTIVITY/ACTIONS	TIMELINE	RESOURCES	OUTCOMES (indicator data collected)

Appendix

Using Data/Getting Results: A Practical Guide for School Improvement in Mathematics and Science. p. 27
At the heart of the inquiry process is the use of data – the compelling evidence that grounds conclusions in actual results, not in speculation. Data can be either quantitative or qualitative. They are quantitative when they take numerical form and are collected using standardized instruments. Whether the data come from test scores, course enrollments, interviews, observations, or surveys, they are considered quantitative when they are analyzed and reported in this way. Data are qualitative when unstructured interviewing or observational techniques are used and analysis and reporting take the shape of narrative rather than numbers. Whatever the type, data are the essential pieces of information needed to better understand and solve problems.

The kind of data that mathematics and science improvement teams will want to use depends on the problems they are investigating. Some examples are listed below.

Examples of Useful Data

- Standardized test results
- State assessment results
- Performance assessment results
- Examples of student work
- Teacher surveys on classroom practice
- Teacher surveys on concerns and needs
- Surveys on student aspirations
- Records of use of science kits or manipulative materials
- Master schedules showing mathematics and science course offerings
- Demographic breakouts of students participating in mathematics

The Adaptive School pg.37-47
Seven Norms of Collaboration:

1. Pausing
2. Paraphrasing
3. Probing for specificity
4. Putting ideas on the table
5. Paying attention to self and others
6. Presuming positive intentions
7. Pursuing a balance between advocacy and inquiry

How People Learn p. 10-13
Key Findings:

1. Students come to the classroom with preconceptions about how the world works. If their initial understanding is not engaged, they may fail to grasp the new concepts and information that are taught, or they may learn them for purposes of a test but revert to their preconceptions outside the classroom.
2. To develop competence in an area of inquiry, students must: a) have a deep foundation of factual knowledge, b) understand facts and ideas in the context of conceptual framework, and c) organize knowledge in ways that facilitate retrieval and application.
3. A "metacognitive" approach to instruction can help students learn to take control of their own learning by defining learning goals and monitoring their progress in achieving them.

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