Feedback from Exit Slips in June

LOVED the time given to collaborate with teachers at own school as well as teachers from other schools who teach the same grade/subject.

Want to collaborate regularly throughout this process, including collaborating with the grade level above and below your own.

Feedback from Exit Slips in June

Looking for information on how to write lesson plans and objectives.

We are ready to go with other subjects - 2012 is a long way away.

Feedback from Exit Slips in June

Would like to meet with other technology, art, foreign language teachers.

Workshops in smaller groups.
Feedback from Exit Slips in June

- Would like an all-school directory to compare and share units
- Would like curriculum guides for electives
- ITBS and ADH Standards for all subjects
- Web sites to go to for help
- Less travel time, more work time

Some Helpful Science Web Sites

- National Science and Teaching Standards, www.nsta.org
- National Science Education Standards, www.nap.edu/html.nses
- American Association for the Advancement of Science, AAAS, www.project2061.org

Your feedback from June indicates to us that you see a need to revisit and revise.

We agree!

Year Long Plan

<table>
<thead>
<tr>
<th>Aug/Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big topic</td>
<td>Big topic sub-topic</td>
<td>Big topic sub-topic</td>
<td>Big topic sub-topic</td>
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<tr>
<td>sub-topic</td>
<td>sub-topic</td>
<td>sub-topic</td>
<td>sub-topic</td>
<td>sub-topic</td>
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</table>

Big Topic

<table>
<thead>
<tr>
<th>Feb</th>
<th>March</th>
<th>April</th>
<th>May</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big topic</td>
<td>Big topic sub-topic</td>
<td>Big topic sub-topic</td>
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</tr>
</tbody>
</table>

We agree!
Today’s Outcomes

By today’s end, participants will be able to do the following:

1. Describe the positive effect of placing inquiry as heart of best practice in science education.
2. Identify the most important learning outcomes for at least one topic/unit of the year-long plan (YLP)
3. Identify the specific standards that relate to those outcomes.
4. Discuss why it is important for students to achieve these outcomes.

Your Feedback

At the end of today, we will ask you to share your feedback with us. We are always hoping to make these sessions worthwhile, and your feedback makes that possible!

INQUIRY

1. content standard: understanding what inquiry is and developing the abilities needed to conduct it.
2. a way to learn science, a method by which teachers help students build understanding of science concepts and theories through investigations.
Important features of student inquiry:

- Teachers help students learn how to ask scientifically-oriented questions.

Learners attempt to answer these questions through many types of hands-on investigations.

They analyze data, synthesize their ideas, make inferences and predictions, build models, and actively create, modify, and discard explanations or answers.

Great connections to reading strategies

Important Features of Student Inquiry

Learners communicate and justify explanations to classmates and teachers by presenting reasoning and evidence.

Learners evaluate their explanations in light of alternative explanations, especially those reflecting scientific understanding. They clarify concepts and explanations with teachers and other expert sources of scientific knowledge.

Important Features of Student Inquiry

Learners extend their new understanding and abilities and apply what they have learned to new situations.

Learners, with the teacher, review and assess what they have learned, how they have learned it, AND WHY THEY LEARNED IT.
INQUIRY

For true inquiry to occur, the teacher must ensure that students try to answer a scientific question with good evidence.

INQUIRY

Scientific inquiry and hands-on science are not synonymous. Many teachers do hands-on science but not inquiry. The inquiry approach requires a scientifically-oriented question that is answered with evidence.

INQUIRY

During scientific inquiry, the teacher should keep the focus on understanding.

*students must attain an "initial threshold of knowledge"
*then they must apply that knowledge in various contexts
*and then they receive feedback from others

INQUIRY

Students’ learning is enhanced by collaborative group work.

Discussion promotes thinking and problem solving.

INQUIRY

THESE ARE THINGS THAT REAL SCIENTISTS DO!

INQUIRY

Give One, Get One

Teachers of science should select content and adapt curricula to meet the interests, understanding, and experiences of students.

• Identify 1-2 positive effects of teaching science this way.
• Stand up.
• Find a partner not at your table.
• Share: you give one of your ideas, and your partner gives one of his/her ideas.
• Now you have 2-4 positive effects!
Further Revisions of YLP: Today’s Plan
1. Choose one topic.
2. Identify 2-4 of the most important learning outcomes for that topic.
3. Match the outcomes with the ADH Standards, ITBS Standards, etc.
4. Discuss why it’s important for students to learn these outcomes.

Step #1:
Choose a topic from your year-long plan.

Step #2: Content Map
- Complete a content map for this topic. What are the important knowledge and skills that students should learn in this unit about this topic?
- Use your ADH Standards, textbooks, ITBS Standards, etc.

Step #2: Content Map
- Write your topic in the center of Input Sheet #6.
- Identify 3-4 “clusters” of knowledge/skills; you can add sub-points
- If you have more than 3 or 4, please combine them.

Your Task
- Then discuss the relationships among the 3-4 “clusters.”
- These relationships will...
  - lead to outcomes,
  - connect these outcomes to standards
  - indicate the order in which to teach these “clusters”

Step 3: Writing Outcomes
- Let’s practice first.
- ONLY look at the far left, shaded column.

Look at RESOURCE SHEET #12.
- Now look at column #2.
  - Write YES if it is a good outcome.
  - Write NO if it is not a good outcome.
- THEN try it yourself: write an outcome for this topic.

RESOURCE SHEET #12: Crafting Outcomes

<table>
<thead>
<tr>
<th>Column #1</th>
<th>Examples of Outcomes</th>
<th>Examples and True Examples of Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td><strong>YLP</strong></td>
<td><strong>YLP</strong> examples and explanations should be straightforward and clear. The task should be clear and specific. There should be a clear explanation of the procedures to be followed.**</td>
</tr>
<tr>
<td>18</td>
<td><strong>ADH</strong></td>
<td><strong>ADH</strong> examples and explanations should be straightforward and clear. The task should be clear and specific. There should be a clear explanation of the procedures to be followed.**</td>
</tr>
<tr>
<td>19</td>
<td><strong>ITBS</strong></td>
<td><strong>ITBS</strong> examples and explanations should be straightforward and clear. The task should be clear and specific. There should be a clear explanation of the procedures to be followed.**</td>
</tr>
<tr>
<td>20</td>
<td><strong>Other</strong></td>
<td><strong>Other</strong> examples and explanations should be straightforward and clear. The task should be clear and specific. There should be a clear explanation of the procedures to be followed.**</td>
</tr>
</tbody>
</table>
Step #3: Writing Outcomes

- Now look at TEMPLATE #2.
- Write 3-5 learning outcomes for your topic from your year-long plan.
- You can also refer to Resource Sheet #13: Bloom’s Taxonomy.

Resource Sheet #13

21st Century Bloom's Taxonomy

- Creating
- Evaluating
- Analyzing
- Applying
- Understanding
- Remembering

Step #4: Connecting Outcomes to Standards

- Look at your outcomes.
- Look at your standards.
- Do they connect?
- Write the standards that connect with the outcomes you have written.
- YOU MIGHT REVISE YOUR OUTCOMES BASED ON THE CONNECTIONS YOU SEE WITH THE STANDARDS.

Step #5: Bridging from Outcomes to Assessment

- Make connections to WHY students are learning this.
- Why is this important to learn?
- What is the purpose of learning this?
- When will students “use” this information?
- What kinds of problems will it help students solve?
- What do scientists do with this learning?
STEP #5

★ Keep asking why...
★ WHY? Students will need it in high school.
★ WHY? It is important.
★ WHY? It will help students...

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3. Identify the specific standards that relate to those outcomes.
4. Discuss why it is important for students to achieve these outcomes.

Your Feedback: EXIT SLIP

Please share your feedback with us about today as well as this process in general. We are always trying to improve!

THANK YOU!

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