Examining Student Work:
A Collaborative Inquiry into Exemplary Teaching and Learning
produced by the Calgary Science School

"The vital behaviours of an effective school community:

- teachers must engage in collective inquiry to address the issues most essential to student learning,
- they must build shared knowledge about their current reality and promising practices in the profession, and
- they must continually monitor student learning and gather evidence in order to inform and improve practice and drive their continuous learning process."

"Individual teachers who reflect on their practice *in isolation* are unlikely to improve their effectiveness. Reflection leads to improved practice only when it is based on actual evidence of student learning and when it is done collectively."

(From "Rethinking How Students Learn: The role of PLC's in advancing 21st century skills")

Goal:
The focus of this school-wide initiative is to deepen our understanding of exemplary, inquiry-based teaching practice through the collection and analysis of student work. This process involves teachers, working in subject partners with the help of facilitators, collecting and examining artifacts of student work to determine the success of particular instructional practices. This framework is designed to slow down and document the process of planning, delivering and assessing our inquiry-based teaching practices.

As teachers move through this framework they will carefully examine: the design of the learning task, the appropriateness of the assessment practices, the use of technology, and the connections between the intended learning outcomes and the evidence of student learning.

As teachers and facilitators move through the framework, they will examine:

(1) the desired learning goals for the task (Content, skills, attitudes, conceptual frameworks, etc)
(2) the steps/lessons for the project stated (brief, not in depth explanations)
(3) assessment material (performance tasks, rubrics, quizzes, tests, etc)
(4) two student examples (high achieving, low achieving)

Outcomes of the Examining Student Work process.

As the central activity in our school's professional development plan, the Examining Student Work process will help us to achieve a number of important outcomes:

- Instructional practices that allow every Calgary Science School student to experience success;
- Use evidence of student learning to critically examine the impact of our teaching;
- Document inquiry-based teaching and learning for Collaborative Outreach (i.e., student work to be posted on the Connect blog);
- Develop a inquiry-disposition among teaching staff that challenges current thinking and practices;
- Continue our development of exemplary inquiry-based, technology supported teaching and learning; and
- 'de-privatization' of our classrooms and the examination of tacit assumptions and beliefs as teachers.

Part 1: Designing the Learning

The goal of part 1 is to examine the work that students are being asked to complete in the project/inquiry. Our focus is to have a critical look at the authenticity of the intended learning outcomes as well as use the Calgary Science School Inquiry Rubric to examine the task.

1. **Stating and analyzing the key learning objectives**

What did you want students to understand and/or be able to do through this task/ project/assignment? What is worth knowing about this topic?

- *I want students to understand .....* (Content) and/or
- *I want students to be able to do.....*(Skills and Attitudes, ways of thinking)

To what extent do these learning objectives mirror the understandings from within a discipline or field in the real world? Where do you see people outside of school setting working with these ideas/skills? How are these learning objectives structured to allow students to develop deep understanding?

2. **Building the task for student engagement**

When structuring the learning, teachers should design the project using the Calgary Science School Inquiry Rubric. The purpose of this rubric is to provide clear benchmarks of exemplary inquiry-based teaching.

Due to the possible difference in scope of the tasks being analyzed, teachers and instructional support should discuss which categories (authenticity, working with experts, assessment etc) from the Inquiry Rubric are relevant to the particular project or unit at hand. It is likely that not all categories will apply to all tasks.

While building the task using the rubric, the following questions can be used for discussion around the learning:

- What will your students have to do or produce/perform to demonstrate their understanding? Is this work someone in the field would engage in? Is it authentic to a discipline? Who would engage in this task in the real world?
- Are students provided the opportunity to have rich, hands-on experiences? Are they problem solving, building, modeling and sharing?
- Where are the places where student choice is present? What personal skills are students able to develop through this task?
- Do students have the opportunity to hear and respond to other students' ideas? Are the improving each other's ideas?
- How will students connect to this issue personally? Where do students find themselves in this topic/task? Do students have the opportunity to actively

respond to the task?

- Who is the audience for this task? Can a more authentic audience be found?
- Are the students asked to wrestle with a topic or take a side on an issue?
- Is technology used to build knowledge or connect students in some way? Is the use of technology similar to how the discipline uses the technology? Are students being asked/taught to be critical and ethical consumers of online information?

3. How will we know what they know? How will we help students improve?

After designing the learning task, we next want to design assessments that enhance student learning. When considering assessment consider the following:

- What will you collect and/or observe as evidence of student understanding? Does this count as evidence of deep understanding of the key learning outcomes?
- Where are the places you check for student understanding throughout the task? To what extent will student understanding be built through sequenced activities and guided inquiries? Are all the activities purposeful and directed toward deep understanding of the key learning outcomes?
- What scaffolds have been put in place to assist students in identifying areas for improvement and next learning steps? How does the design of the study intervene to increase student understanding (assessment for learning, feedback loops, etc)?
- Are there clear and direct connections between the key learning outcomes and the assessments used? Are there places where the rubrics might be improved to get a closer connection to the big understandings of the project?

Part 2: Examining Student Work

The purpose of this second stage is to gather evidence of the intended learning outcomes of the project were met by students. We will look at the work created by students to determine their understanding of the intended outcomes.

Teachers should choose TWO students to follow throughout the entire year of this process, one high-achieving and one low-achieving student.

When examining student work samples, consider the following:

- What evidence of understanding can be gleaned from each of these work samples? Where is the evidence of deep understanding of the key learning outcomes?
- What are the strengths of the each exemplar? What are the missing components?
- How satisfied are you with the level of understanding that students demonstrated? To what degree do you believe the task was worthwhile in relation to the learning results that were achieved?
- What was the range of student performance? How many students demonstrated acceptable or higher on the project? (3 or 4) Provide the number of students at the different grade levels. How consistent is the student performance across the four classrooms?
- Are there places in the design of the project that you think could be revised to increase student understanding?
- Are there any common themes emerging from the student work? Does this task help you determine next steps as a teacher?

One additional idea is to interview a few students, have students record a short podcast, or create a survey about the project. You might ask them: what they thought the intended outcomes of the project were, what level of understanding they felt they developed, and how their piece of work demonstrates that understanding.

Teacher Comments/Thoughts/Reflections from Part II: