International Baccalaureate Primary Years Programme

Supplementary Workbook for Category 3S: Inquiry in the PYP

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Contents

International Baccalaureate Primary Years Programme

Category 3S: Inquiry in the PYP - *Workshop Objectives*

This workshop is for administrators, coordinators and teachers who:

- have been working with the programme for at least one school year
- have previously attending a PYP workshop (regional or in-school) facilitated by IB PYP workshop leaders organized by or through the regional office

The purpose of this workshop is to develop the following understandings:

- The purpose of this workshop is to explore IB standards and practices under C3 pertaining to inquiry.
- Inquiry begins with students' knowledge and curiosity upon which they construct meaning and build connections.
- In inquiry, students are actively involved and take responsibility for their learning in an authentic context.
- Inquiry is true differentiation. It allows all students to understand the world at a rate that is unique to them.
- Inquiry is not only questions. It is a process that involves provocation, reflection and consolidation.
- The inquiry process analyses, synthesizes and manipulates knowledge. It can be developed through play and more structured learning.
- Successful inquiry will lead to responsible action initiated by students.
- Inquiry is a shared process, a collaborative interplay between students, teachers and the environment.
- Inquiry addresses scope and sequence criteria through concept based units structured around central ideas and lines of inquiry.
- Successful inquiry requires pre-assessment, continual formative assessment and a summative task(s) that allows students to demonstrate their conceptual understanding of the central idea.

Central Idea: Inquiry is a cognitive and communicative act that links inner and outer dialogue and enables learners to discover the power of their own minds.

Notable Quotations for Inquiring Minds

"Students cannot possibly learn everything of value by the time they leave school, but we can instill in them the desire to keep questioning throughout their lives."

Grant Wiggins and Jay McTighe, Understanding by Design, 2004

"The spirit of philosophy is one of free inquiry. It suspects all authority. Its function is to trace the uncritical assumptions of human thought to their hiding places, and in this pursuit it may finally end in denial or a frank admission of the incapacity of pure reason to reach the ultimate reality."

Muhammad Iqbal (Poet, 1877 – 1938)

"Educationists should build the capacities of the spirit of inquiry, creativity, entrepreneurial and moral leadership among students and become their role model."

Dr. Abdul Kalam, President of India, b. 1931

"Inquiry is the dynamic process of being open to wonder and puzzlements and coming to know and understand the world."

Galileo Educational Network, 2004

"In the inquiry process, metacognition means becoming aware of one's own thinking processes (thinking about thinking) and acknowledging and understanding the feelings associated with each of the phases."

Focus on Inquiry, Alberta Education, 2004

"Inquiry is an approach to learning that involves a process of exploring the natural or material world, that leads to asking questions and making discoveries in the search for new understandings."

(Exploratorium Institute for Inquiry)

What is Inquiry Based Learning?

(Source: Focus on Inquiry, Alberta Learning, 2004
http://education.alberta.ca/media/313361/focusoninquiry.pdf)

Inquiry-based learning is a process where students are involved in their learning, formulate questions, investigate widely and then build new understandings, meanings and knowledge. That knowledge is new to the students and may be used to answer a question, to develop a solution or to support a position or point of view. The knowledge is usually presented to others and may result in some sort of action.

What does the research say?

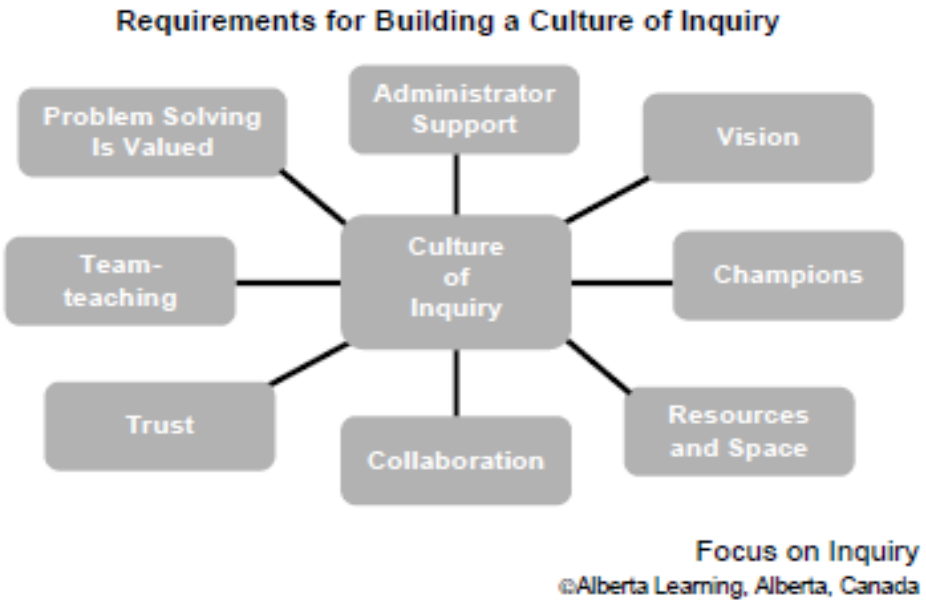
Research suggests that using inquiry-based learning with students can help them become more creative, more positive and more independent (Kuhne, 1995). This is true for all students, including those with special needs who require moer individual attention during the process.

Other academic research shows that inquiry-based learning improves student achievement (GLEF, 2001). Some of the research on this effect comes from studies of effective school library programs that are centres of inquiry-based learning. A school library program that is properly equipped and staffed can make a difference in terms of measurable gains in student achievement. School library factors alone can account for improvements of 2% to 9% in student achievement (Lance, 2001).

Success with inquiry-based learning often requires a change in school culture. Some schools, individually or as part of a district-wide initiative, have made inquiry-based learning their instructional

priority. Studies investigating the implementation of inquiry-based science education, inquiry-based information literacy programs and other inquiry-based educational innovations have resulted in guidelines for building a culture of inquiry (Falk & Drayton, 2001; Fullan, 1991; Kuhlthau, 2001):

- Administrators in the school or district have a clearly articulated vision for inquiry.
- The vision for inquiry is carried forward despite competing pressures.
- Two or more champions promote the vision for inquiry.
- Resources and space for inquiry are readily accessible.
- Teachers collaborate and support each other.
- Teachers, students and parents trust each other.
- Small, interdisciplinary teams of teachers work together.
- Problem-solving and investigative skills are valued throughout the school/school system.



(Focus on Inquiry, Alberta Learning, 2004, pg. 11 – 13)

Characteristics of classrooms using the inquiry process successfully

Classrooms where teachers emphasize inquiry-based learning have the following characteristics (Drayton & Falk, 2001):

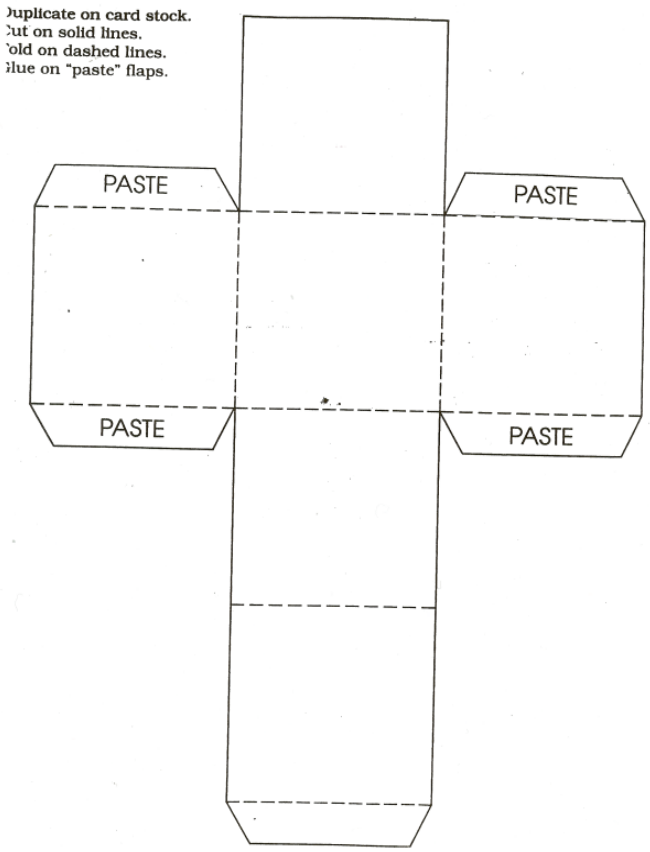
- Inquiry is in the form of authentic (real-life) problems within the context of the curriculum and/or community.
- The inquiry capitalizes on student curiosity.
- Data and information are actively used, interpreted, refined, digested and discussed.
- Teachers, students and teacher-librarian collaborate.
- Community and society are connected with the inquiry.
- The teacher models the behaviours of inquirer.
- The teacher uses the language of inquiry on an ongoing basis.
- Students take ownership of their learning.
- The teacher facilitates the process of gathering and presenting information.
- The teacher and students use technology to advance inquiry.
- The teacher embraces inquiry as both content and pedagogy.
- The teacher and students interact more frequently and more actively than during traditional teaching.
- There is an identifiable time for inquiry-based learning.

(Focus on Inquiry, Alberta Learning, 2004, pg 14.)

The Engagement Cube

This strategy asks students to apply different levels of thinking to their inquiry discussions, reflections or questions.

Make a cube or write the descriptors on a wooden cube.



You can:

1. **Describe it**
2. **Compare it**
3. **Connect it**
4. **Analyze it**
5. **Apply it**
6. **Rearrange it**

Or why not...

- Argue for or ag
- Illustrate it
- Question it
- Satirize it
- Evaluate it
- Associate it
- Cartoon it
- Change it
- Solve it
- Teach it
- Paraphrase it
- Extend it
- Reflect on it

Inquiry Learning is about Making Connections

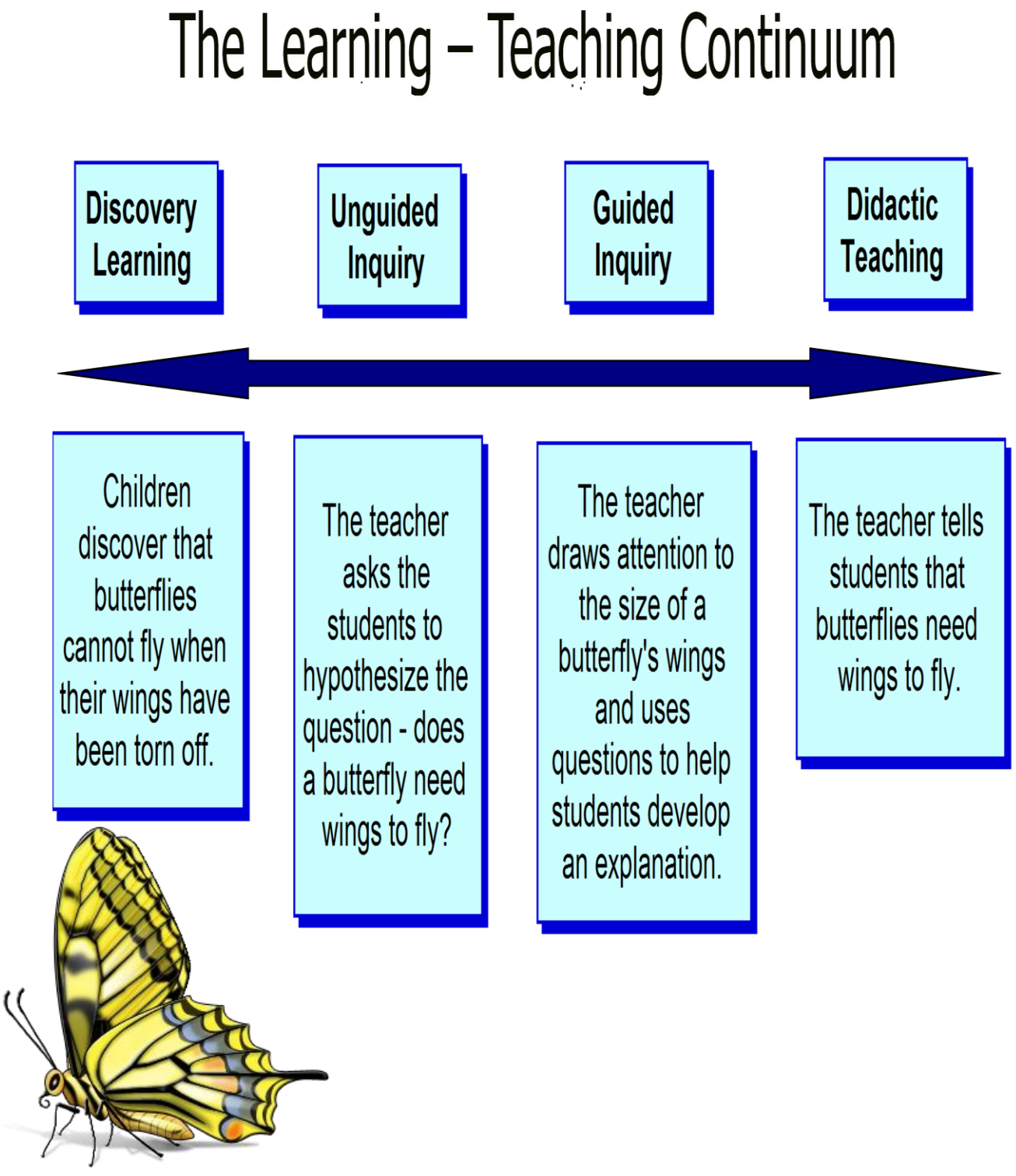
As learners, we all have experiences from which we draw when facing new challenges.

Inquiry is the process by which a learner uses their background knowledge to approach new situations, and asks questions to find out more.

Students can make connections by:

- Bringing in objects/artifacts
- Describing experiences
- Reading literature that encourages their own stories
- Creating works of art that reflect thoughts
- Role playing situations
- Writing or sketching responses
- Conduct surveys... and many more!

The Learning- Teaching Continuum



Improving Student Initiative Through Inquiry

Learning engagements can be placed on the grid according to their inquiry characteristics.

<table>
<tr><td colspan="4">High Teacher Control</td></tr>
<tr><td rowspan="2">Low Student Initiative</td><td>Structured Learning</td><td>Guided Inquiry</td><td rowspan="2">High Student Initiative</td></tr>
<tr><td>Laissez-Faire/ Anything Goes</td><td>Open Inquiry or Free Inquiry</td></tr>
<tr><td colspan="4">Low Teacher Control</td></tr>
</table>

Characteristics of Different Types of Inquiry

Inquiry based instruction represents a broad range of instructional possibilities. Some characteristics of different types of inquiry:

Open Inquiry: Students make almost all of the decisions. There is little or no additional guidance.

Guided Inquiry: Students make choices in the inquiry. Student's choices lead to deeper understanding guided by some structure given by the leader.

Structured inquiry: Students make choices in the inquiry which are dependent upon guidelines and structure given by the leader. Amount of structure may vary depending on the outcome desired and assessments.

In all types of inquiry based instruction, there may be variations depending on the particular inquiry, but student questions are always valued in authentic ways.

What does Inquiry look like?

Inquiry, interpreted in the broadest sense, is the process initiated by the students or the teacher that moves the students from their current level of understanding to a new and deeper level of understanding.

This can mean:

- exploring, wondering and questioning
- experimenting and playing with possibilities
- making connections between previous learning and current learning
- making predictions and acting purposefully to see what happens
- collecting data and reporting findings
- clarifying existing ideas and reappraising perceptions of events
- deepening understanding through the application of a concept
- making and testing theories
- researching and seeking information
- taking and defending a position
- solving problems in a variety of ways

(Source: MTPYPH p 29)

How does this connect with classroom practices?

Visual Markers of a PYP Classroom

A PYP classroom is organized to encourage students to become internationally-minded learners. Displayed items are interactive for students (consider eye level placement) and reflects a PYP approach to learning that permeates the classroom. The classroom is kid-friendly, engaging, and orderly. Everything posted has a clearly defined purpose relating to student learning.

- Learner Profile:
  - Student created definitions and examples
  - Displays and resources that present students with a global perspective
- Current Unit of Inquiry
  - Transdisciplinary Theme
  - Central idea and lines of inquiry
  - Key/related concepts for the unit
  - Student created work, questions and student-initiated actions related to the unit
  - Resources related to the unit displayed and readily accessible to students
- PYP Key Concepts
  - Used to structure learning in all subjects across the school day
- Documentation of individual and collaborative inquiry
  - Wall displays, inquiry journals, student works showing inquiry process, etc.
- Current student work is posted
  - Evidence of ongoing learning process as well as products
  - Represents a variety of learning styles and approaches
  - Student reflections related to work
  - Balance of teacher and student selected pieces
  - Evidence of higher-level thinking skills
- Student Portfolios
  - Easily and frequently accessed by students
- PYP Attitudes
  - Student-created definitions and examples
- Transdisciplinary Skills
  - At least 5 main skill areas posted for student reference (research, thinking, social, communication, self-management)
  - Evidence of student application of these skills
- PYP Action Cycle
  - Used for students' ongoing personal, social and academic growth
  - Used as a guide for student research and student-initiated actions
- Classroom set-up that allows students to move easily between small group, whole group and individual learning activities
- Also consider: classroom essential agreements, school/classroom mission statements, class/student goals and reflections as well as the IB mission statement

Design Process for Deep Understanding

Understanding of Curricula:

Uncovering "What Matters" about and beyond the curriculum, unit or topic:

- Deconstructing, interpreting & connecting curriculum learning outcomes-
  - What is important and worth knowing and doing through examining the curriculum?
- Defining Understanding –
  - What transfers "beyond" the content knowledge of the curriculum and the classroom?
  - What is not obvious and requires uncoverage?
- Establishing Student Engagement –
  - Why would you and your students care about the lesson/activity?
  - What provokes and sustains the learning?
- Identifying Inquiry Questions-
  - What questions become the climate of your classroom and guide the learning within each and every lesson?
  - What questions have no obvious "right" answers and raise other questions?
  - What questions help to focus the learning?

Evidence of learning:

Designing learning that counts as evidence of understanding and "ongoing" assessment that measures understanding-

- Designing and connecting lessons/activities for knowledge building -
  - What lessons/activities will build upon, connect and help to deepen the understandings of the curriculum?
- Designing and connecting performance tasks -
  - What final products/performance tasks will invite students to demonstrate their deep understandings of curricular outcomes.
- Designing and connecting ongoing Assessment for Learning -
  - What targets, rubrics, checklists, exemplars etc. will guide the learning and facilitate descriptive feedback for learning and teaching?

Infusing Technology:

Identifying and choosing appropriate technology for the purpose of:

- Enhancing the building of knowledge-
  - What technologies enhance the building of knowledge?
- Enabling sharing -
  - What technologies enable sharing of knowledge within and outside of the classroom?
- Enabling collaboration -
  - What technologies enable collaboration in the building of knowledge within and outside of the classroom?

The Role of the Teacher in an Inquiry Classroom

- Listening
- Participating
- Coaching
- Articulating children's implied connections
- Inviting children to elaborate
- Scaffolding
- Provoking
- Recording
- Guiding
- Negotiating power

Inquiry is NOT ALWAYS...

- Expressed as a question
- Clearly or perfectly articulated

And another perspective on roles of the teacher...

1. Motivator
2. Diagnostician
3. Guide
4. Innovator
5. Experimenter
6. Researcher
7. Modeller
8. Mentor
9. Collaborator
10. Learner

(Crawford, 2000, in Focus on Inquiry, Alberta Education, pg. 37)

What is successful inquiry?

Successful inquiry is the finding of new understandings.

Understanding is temporary and can be changed over time.

Answers are final and will not change with new experiences.

(Source: Kathy Short, Learning Together Through Inquiry)

Behaviours of Constructivist Teachers: Reflection Sheet

Reflect upon your own practice using these characteristics of constructivist teachers.

Constructivist teachers:

• Value students' points of view

• Challenge students' beliefs

• Have control over what they teach but far less over what children learn

• Use words such as analyze, classify, predict and create

• Have children share, hear and reflect on the ideas of others

• Clarify student questions and demand accuracy but withhold judgement

• Provide time for inquiry based upon student interests and ideas

• Respect learners, using names, valuing their ideas, encouraging their responses

• Withhold their own views in order to allow students to challenge their own views

• Challenge correct responses, encouraging a search for alternative perspectives

• Ask for elaboration of initial responses

• Allow for wait time

• Consider the importance of bigger concepts

• Understand that inquiry can be difficult and messy

• Are positioned on the side not always at the front and in the lead

• Observe children and use students' daily work, points of view, ideas, projects, demonstrations and observations to guide teaching.

From Brooks and Brooks, The Case for Constructivist Classrooms

What does Inquiry sound like?

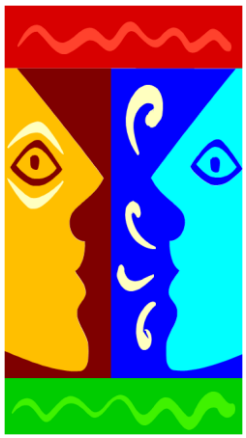
INQUIRY LANGUAGE

- Help me understand...
- Tell me more...
- I wonder if...
- That surprises you...
- So you think maybe....
- What do you think...
- In what ways do you know...
- There's a part I want to ask about...
- I'm trying to figure out...
- I wonder why...
- Well maybe...
- I think that....
- I noticed....
- This is what I don't get...
- It makes sense that...
- I thought it was....
- I wonder...

Facilitating Discussions That Promote Inquiry

Turn the Thinking Back to the Students

- What do you think?
- How could you find out?
- How could you solve this problem?
- What ideas do you have?



Focus on Students' thinking

- What made you think of that?
- Can you explain your reasoning?
- How did you solve that problem?
- What made you decide to try that strategy?
- How would you explain that idea to others?

Probe to Clarify and Explore Students' Thinking and Promote Reflection

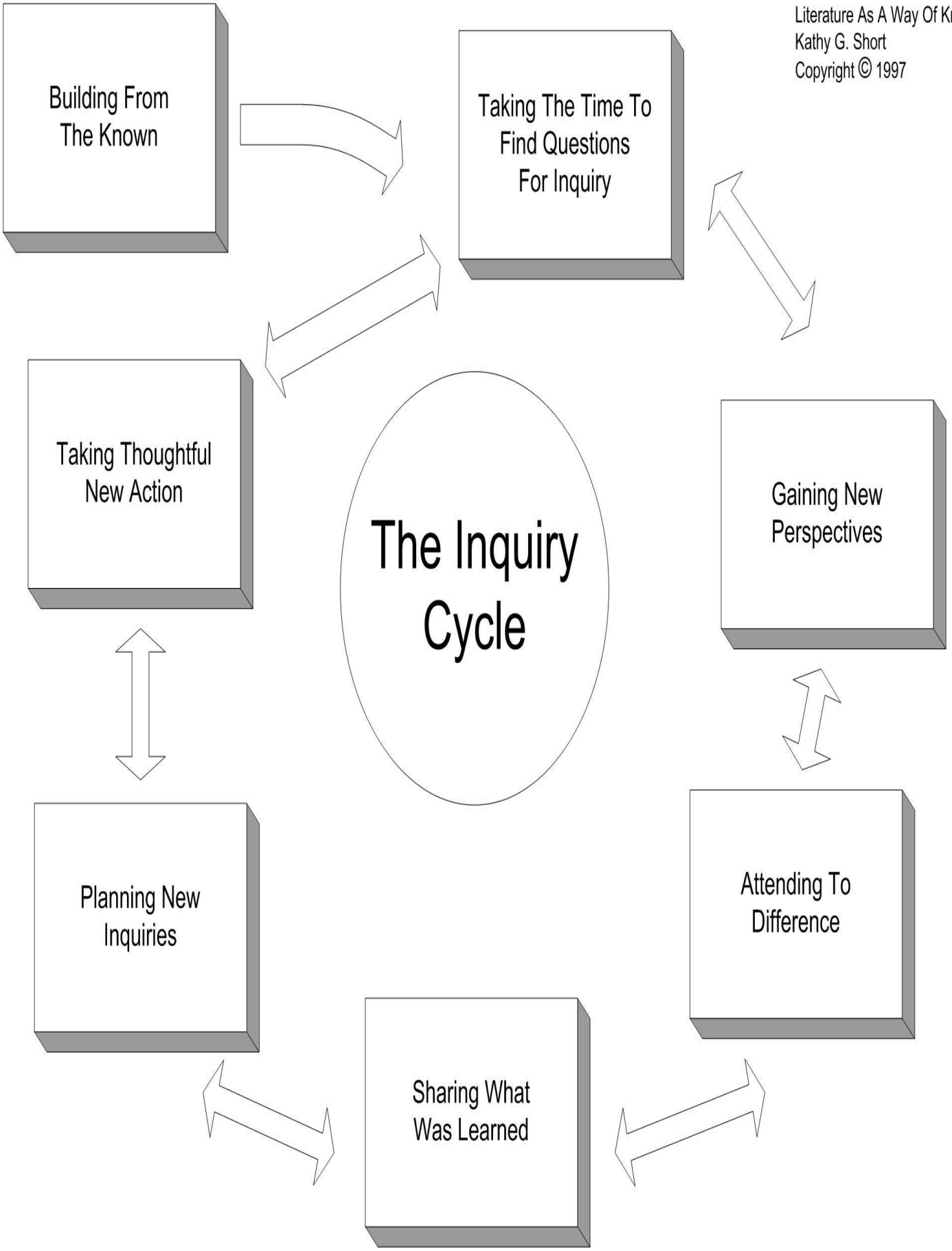
- Tell me more about …..?
- What did you do first? Next?
- What made you decide to solve the problem that way?
- Where did you get stuck and what did you do when that happened?
- What did you wonder about when you were working on …..?
- What pictures are you seeing in your mind to help you think about that?

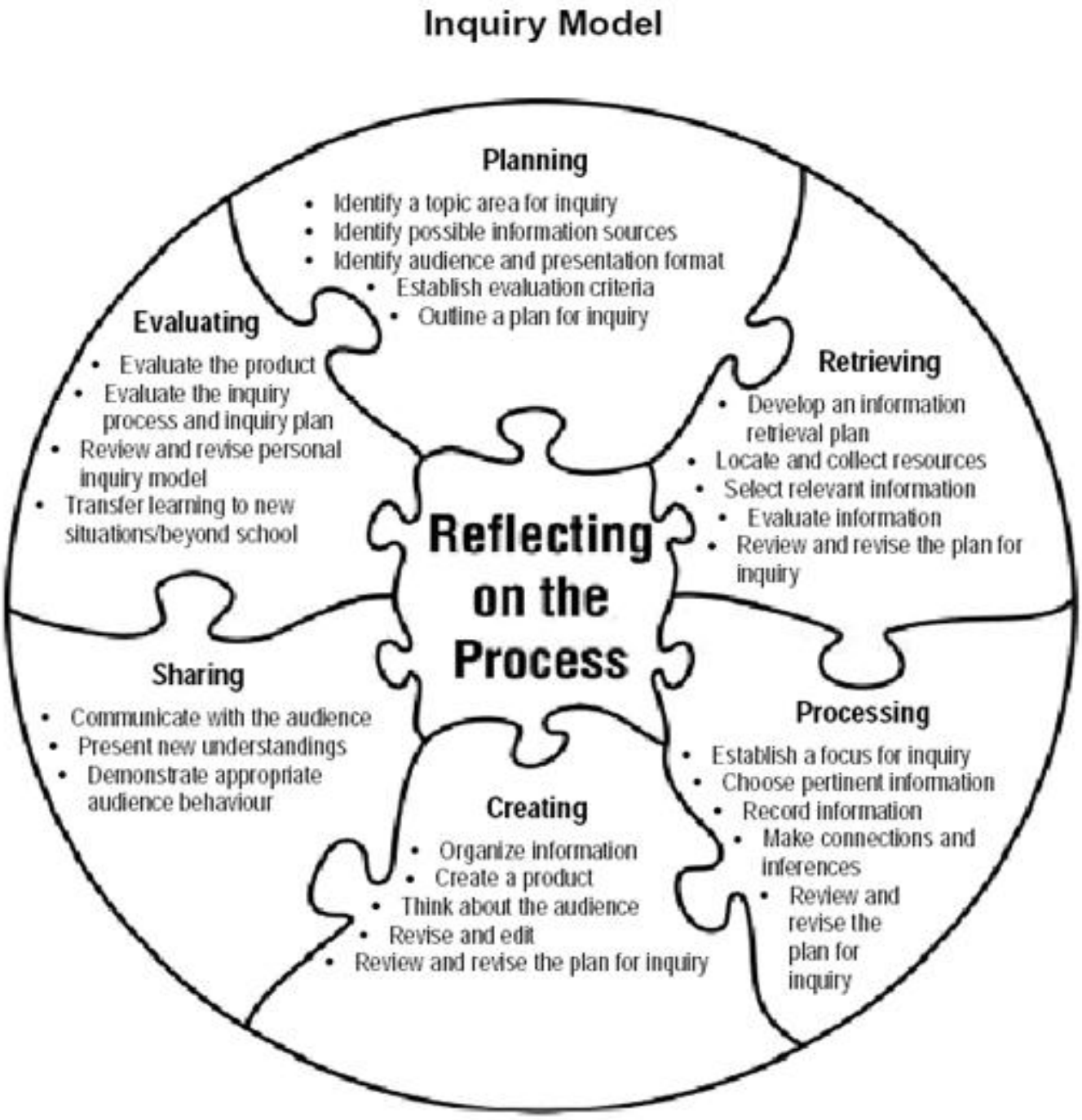
Redirect Students to Each Other

- Did you hear what _____ said?
- Could you repeat what you said so everyone can hear it?
- What do you think about that idea?
- Do you agree or disagree? Why?
- What would you like to add to what _____ said?

Treat Routine Procedures and Social Issues Reflectively

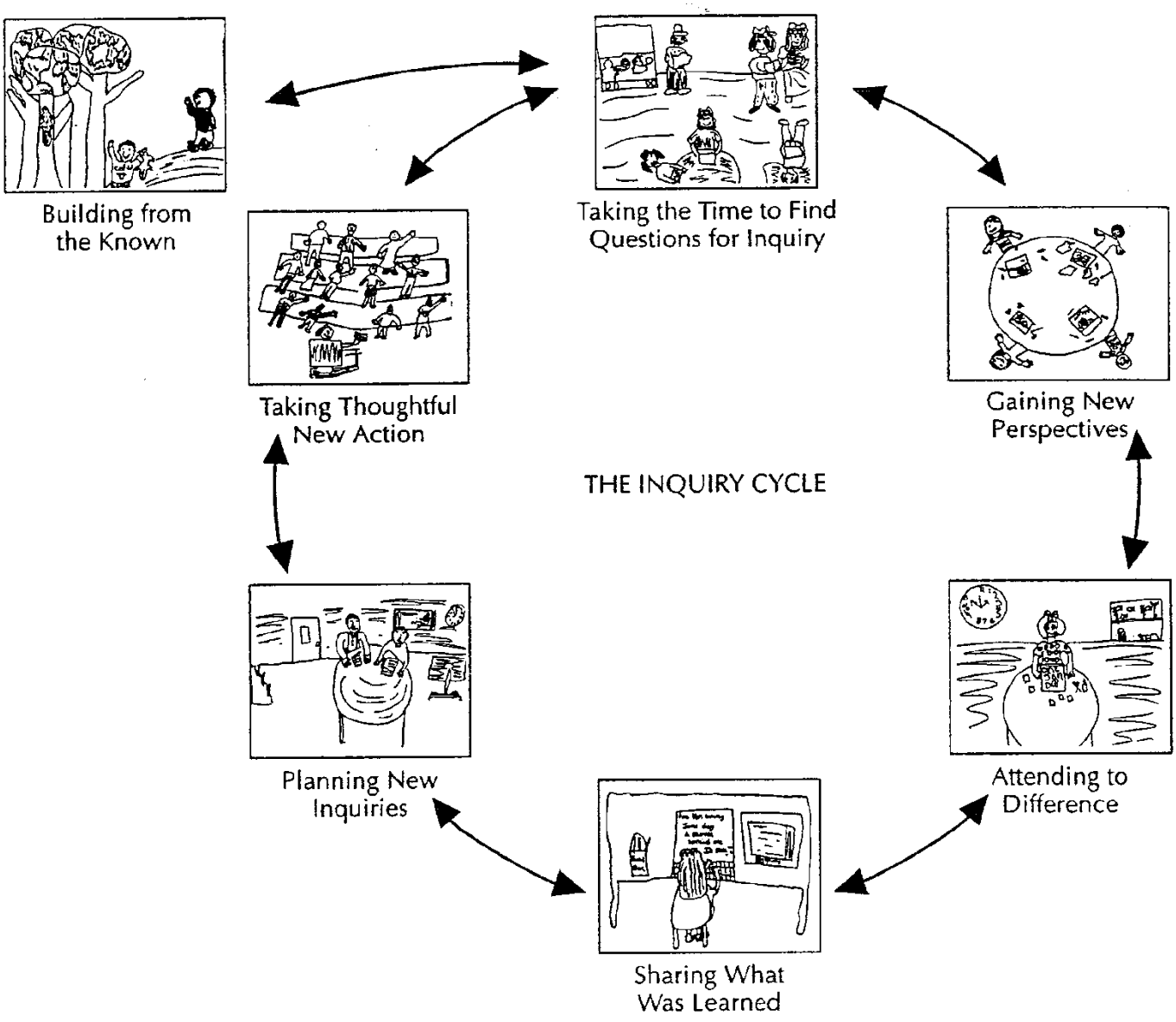
- What happened? What do you think caused that to happen?
- How do you think _____ felt when that happened?
- How would you feel if that happened to you?
- What could you/they/she/he have done instead?
- How could we/they help _____ so that won't/wouldn't happen again?





Inquiry Model – Focus on Alberta

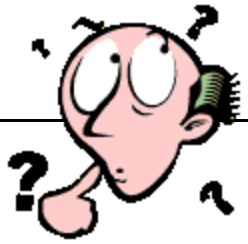
Source: Focus on Inquiry (2004)
Alberta Learning, Alberta, Canada
http://education.alberta.ca/media/313361/focusoninquiry.pdf



Inquiry As A Cycle - Lindfors

What is the difference between traditional teaching and INQUIRY?

Decreased emphasis on:	***Increased emphasis on:***
Language as a separate discipline	Language as a transdisciplinary element
Skill-drill texts and workbooks	A literature-based approach
Restricted reading materials	A wide choice of print
Silent, individual work	Appropriate cooperative discussion
The teacher as an infallible expert	The teacher as a facilitator
Superficial coverage	In-depth study
Rote practice, memorization and symbol manipulation	Manipulatives, to make meaningful connections to real-life
A text-book driven curriculum	Multiple sources and resources for learning
Teacher-led learning	Open-ended inquiry and real-life investigations, in which students and teachers are all part of the community of learners



Curriculum as Fact, Activity and Inquiry

Based on the work of Kathy G. Short and colleagues

Curriculum as Fact	Curriculum as Activity	Curriculum as Inquiry
Traditional subject based teaching	Teaching Through Thematic Topics	Teaching Through Inquiry
Subjects are… segregated	Subjects are… correlated	Subjects are… integrated
Curriculum focused on… memorizing facts	Curriculum focused on… collecting facts	Curriculum focused on… looking for connection and understanding
Learning is for… tests and scores	Learning is for… fun!!!	Learning is for… life!
Knowledge comes from… Text or teacher	Knowledge comes from… activities devised around a nominal theme	Knowledge comes from… providing for real exploration and the construction of meaning, transferable between contexts
The Guiding Question… What must we know?	Teacher's Guiding Question… What should we do?	Teacher's Guiding Question… How best can we understand important concepts?
Assessment focus… memorization and recall of details out of context	Assessment focus… process and presentation skills. Completion of a "product."	Assessment focus… Assessment is integral to all teaching and learning. It identifies understanding and promotes student reflection and learning.
Study is finished when… content is "covered" or disseminated.	Study is finished when… topical links are exhausted and the learning is "done."	Study is finished… Never! The big ideas central to the inquiries are significant enough to be revisited and reapplied throughout life.
Views learners as… passive recipients of innate knowledge	Views learners as… individuals to be trained and amused	Views learners as… problem posers and problem solvers

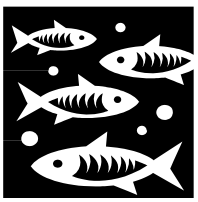
Perspectives on Inquiry – Scenario 1

Source: Learning Together Through Inquiry

By Kathy Short

Kathy's experience in Indiana teaching first-grade thematic unit on exploring the ocean...

Kathy chose the ocean because it was a high-interest topic for first graders and she had many appropriate books and materials to use as resources. At the beginning of the year, she made a list of the units to be studied that year and decided what would be taught. The ocean was slated for January because she thought it might enliven the Indiana winter. In teaching this unit, she read books to the students, pulled together thematic sets of books for browsing in the classroom, and engaged students in activities, such as science experiments with salt water and art activities with watercolor washes and a large mural of sea creatures. She arranged to show movies on the ocean, brought in her own collection of seashells and specimens, and planned learning experiences where students categorized seashells and wrote in fish shaped books. To conclude the unit, Kathy asked students each to choose one sea creature for research and then to write a short informational book with many pictures. At the end of the unit, Kathy gathered up and returned the library books and booked up her materials until the next January.



Perspectives on Inquiry – Scenario 2

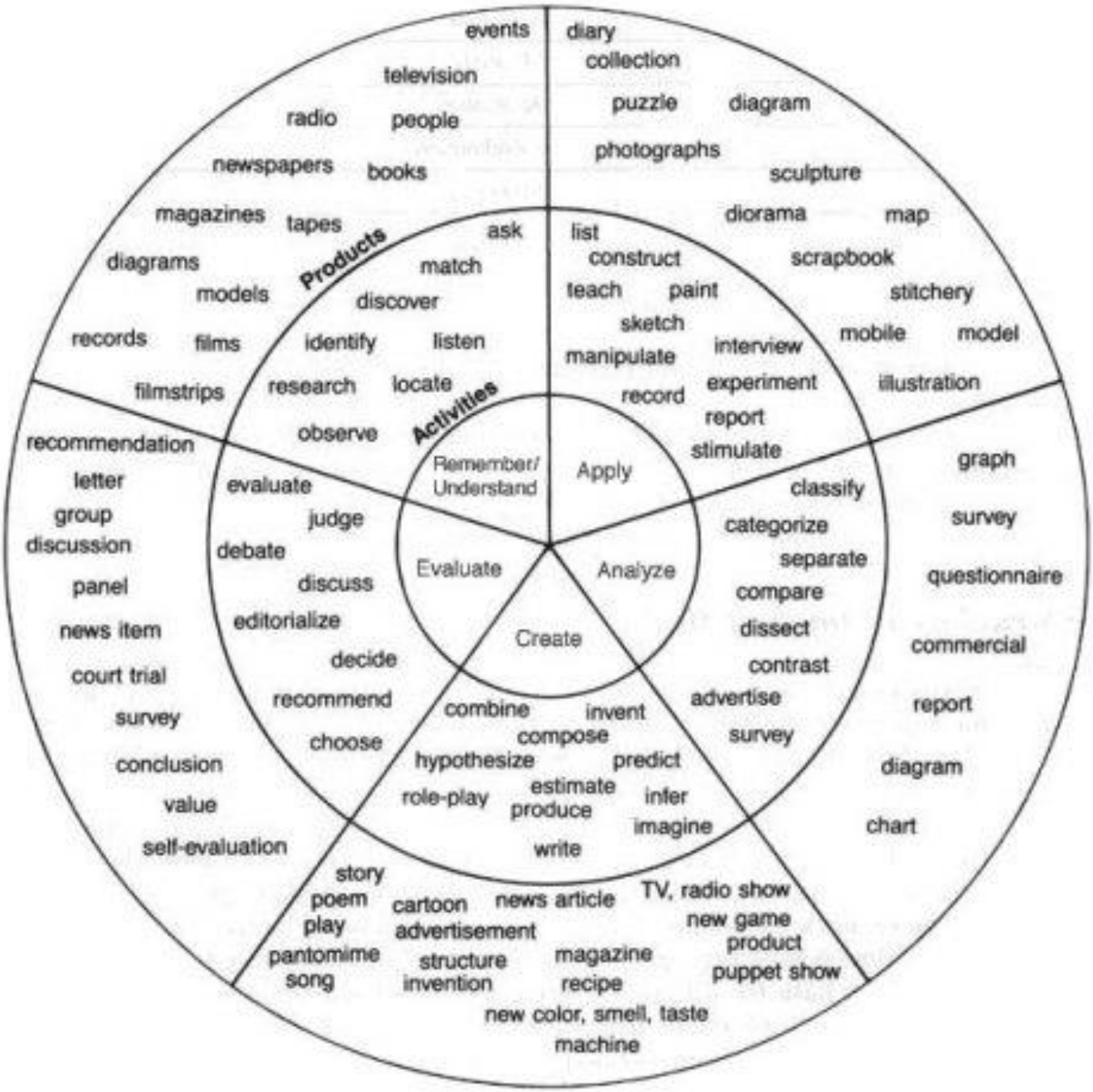
Source: Learning Together Through Inquiry
By Kathy Short

Kathleen's experiences in Tucson with first and second graders exploring the ocean...

Kathleen's class inquiry, or focus, on the ocean began when several children went to San Diego over spring break and returned to the classroom with stories about a huge body of water and sea animals that seemed improbable to children who had spent their lives in the desert. The children's questions and interest led to a class decision to study the ocean. Kathleen gathered fiction, nonfiction, and poetry on the ocean from the library as well as a collection of seashells, photographs, art prints, and music. Children who had been to the ocean added their own seashell collections, pictures and books. Over the course of a week, children had time to tell their stories, browse the materials, and gather each day to share their observations and questions, which were listed on a large sheet of paper. The class then used this list to create a web of questions that were most significant to them. The web became a sign-up sheet for the research groups on why oceans have waves, the difference between molluscs and jellyfish, the teeth and jaw structures of sharks, and how to keep the ocean water clean. Kathleen and the students pulled together resource sets for each group, and students met in their groups to pursue their research. As they worked, they realized that they needed tools for keeping track of what they were finding, so each group developed some kind of chart, web, graph, or diagram to record their data. Students shared their research through presentations that ranged from murals to written books to dramas. After the class focus ended, many of the books remained in a corner of the classroom, and some children continued their exploration of the ocean throughout the rest of the school year. As they explored the ocean, many students became interested in environmental issues. So the class decided that this topic would be their next class focus.

Bloom's Product & Activity Wheel

How can I show what I have learned?



Investigations with Every Age

For our youngest learners…

- Often done as a whole class
- Can be guided or in small groups or pairs
- Children are involved in making a plan
- Finding answers often leads to new inquiries!

Investigations with students from Grades 3 – 6

- Variety of groupings are possible
- Grouping of questions to help organize topics or provide focus for inquires
- May require teacher preparation/assistance to help students to assemble appropriate resources
- Students choose questions, sources of information and how they will share their findings
- Assessment involves students (self assessment), peers and teacher to evaluate transdisciplinary skills (i.e. research, communication, understanding of concepts, etc.)

Investigations vary from class to class and from year to year. This is the place where students can create and follow their own path. Teachers provide the structure and guidance to set students up for success in their journey.

Ideas for Implementing Inquiry

How do you encourage children to wonder "why?" and "how?"

(Even though most are natural inquirers)

• Tap into their interests, but remember significant content that must be taught

• Find out what they know and want to find out

• Use appropriate tuning in activities

• Pose challenging and exciting questions to ignite their interest

• Don't answer their questions, but be interested and encourage them to find out the answers

• Create anticipation - help them to think what may happen and why

• Place questions around the room that captivate their imagination and challenge them to find out

• Help them plan achievable ways of finding out things for themselves

• Model how you think about and form questions

• Jointly construct lists of great questions • Encourage risk taking in learning - praise independent attempts at finding out, forming good O's, thinking about things in a variety of ways

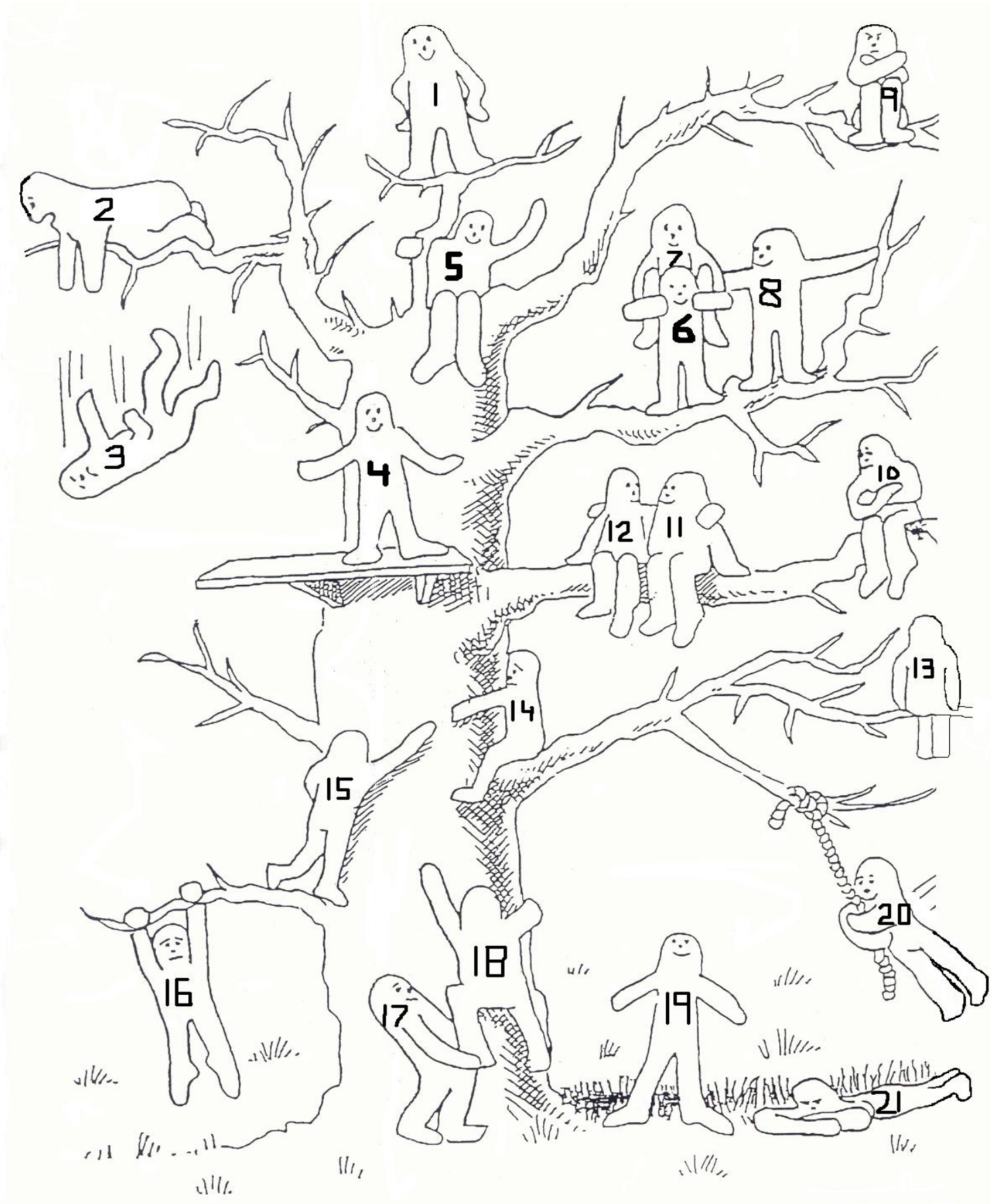
• Ask them to hypothesise, test and modify these

• Involve them in planning data collection and provide direct experiences

• Give them time to present findings

K. Anderson, J. Janssens, C. Dobson-Wesley College, Melbourne

MTPYPH In the Workshop Resource Booklet IB-Asia Pacific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Inquiry Rubric – Galileo Educational Network

	Beginning	Developing	Accomplished
Authenticity	The scope of the inquiry is determined mainly by the curriculum.	The students have some influence in determining the scope of the study.	The inquiry study emanates from a question, problem, issue or exploration that is significant to the disciplines, has meaning to the students and has significant influence in determining the scope of the study.
	The task/s would not likely be tackled outside a school setting.	Other adults outside the school are intrigued by the task/s and can find ways to contribute to it.	An adult at work or in the community might actually tackle the question, problem or exploration posed by the task/s.
	The inquiry study originates with and only meets programs of study expectations.	The inquiry study originates with the program of studies but provides some opportunities to extend beyond curriculum expectations.	The inquiry study originates with an issue, problem, question or exploration that provides opportunities to create or produce something that contributes to the world's knowledge.
	The task/s contain/s few roles which reflect a single perspective.	The task/s contain/s some separate roles which reflect few perspectives.	The task/s require/s a complex array of roles and diverse perspectives.

	Beginning	Developing	Accomplished
Academic Rigor	The inquiry study provides for the acquisition of factual known information.	The inquiry study facilitates the acquisition and application of a broader understanding.	The inquiry study leads students to build deep knowledge that leads to deep understanding.
	Students are required to follow clearly defined approaches to teacher-generated criteria.	Students are offered a menu of approaches organized around the problem, issue or question under study in order to meet specific learning outcomes.	Students are offered a menu of approaches organized around the problem, issue or question under study that use methods of inquiry central to the disciplines that underpin the problem, issue or question.
	The inquiry study encourages students to memorize and repeat facts.	The inquiry study encourages students to find relationships between and among concepts in more than one subject area.	The inquiry study encourages students to develop habits of mind that encourage them to ask questions of: • evidence (how do we know what we know?) • viewpoint (who is speaking?) • pattern and connection (what causes what?) • supposition (how might things have been different?) • why it matters (who cares?)

	Beginning	Developing	Accomplished
Assessment	All assessment is done at the end of the study.	Ongoing assessment is conducted on an informal basis and evaluation is conducted at logical midpoints in the process. Assessment is used in a limited way in guiding teacher's instructional planning.	Ongoing assessment is woven into the design of the inquiry study providing timely, descriptive feedback and utilizes a range of methods, including peer and self-evaluation. Assessment guides student learning and teacher's instructional planning.
	The study provides no opportunities for students to reflect on their learning. There are few criteria to guide the students' learning. There is little or no evidence of goal setting.	The study provides opportunities for students to reflect on their learning using clear criteria established by the teacher. Teachers help students set learning goals, establish next steps and develop effective learning strategies.	The study provides opportunities for students to reflect on their learning using clear criteria that they have helped to set. The students use these reflections to set learning goals, establish next steps and develop effective learning strategies.
	The teacher is the only adult who assesses the work.	Teacher and student self-assessment are used.	Teachers, peers, adults from outside the classroom and the student are involved in the assessment of the work.

	Beginning	Developing	Accomplished
Beyond the School	The study involves a teacher-structured problem framed directly from stated curriculum outcomes.	Students help develop or contribute to defining a relevant question, exploration, problem or issue for study that relates to the world outside the school.	The inquiry requires students to address a semi-structured question, exploration, issue or problem, relevant to curriculum outcomes, but grounded in the life and work beyond the school.
	All parameters of the inquiry (e.g. outcomes, due dates, and expectations) are established by the teacher prior to commencement of the inquiry.	Parameters and desired outcomes of the inquiry are set by the teacher. Milestones and organizational strategies are provided for student self-monitoring.	The study requires students to develop organizational and self-management skills in order to complete the study.
	The inquiry requires mainly individual effort, with little ongoing feedback on performance; the expectation for completion is handing it in.	Teacher presents the study and students choose group members and topics from a menu of choices. The task could be completed independently, but this is not encouraged.	The study leads students to acquire and use competencies expected in high performance work organizations (e.g. teamwork, problem solving, communications, decision-making, project management).

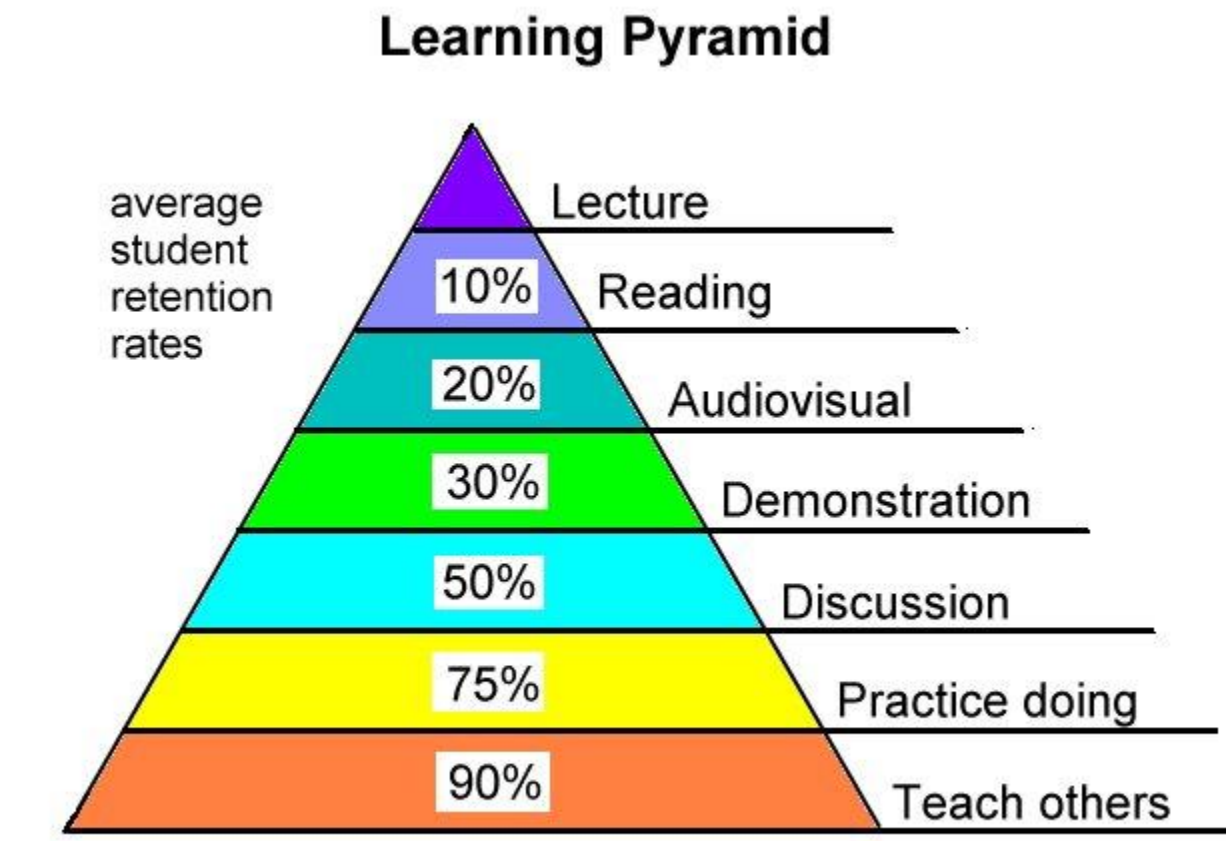
	Beginning	Developing	Accomplished
Appropriate Use of Technology	Technology is used for the sake of using technology, not because it will enhance the inquiry. The technology is not needed to accomplish the task.	Technology has some relevance to the inquiry. The technology is somewhat needed to accomplish the task.	Technology is used in a purposeful manner that demonstrates an appreciation of new ways of thinking and doing. The technology is essential in accomplishing the task.
	Teacher decides which technologies will be used.	Students and teachers collaboratively decide which technologies will be used.	The study requires students to determine which technologies are most appropriate to the task.
	The major focus is on developing skill and fluency with software applications.	The study requires students to conduct research, share information, make decisions, solve problems, create meaning and communicate, mainly inside the classroom.	The study requires students to conduct research, share information, make decisions, solve problems, create meaning and communicate with various audiences inside and outside the classroom.
	The ongoing inquiry study is not available online.	Students have ongoing, online access to the study as it develops.	Students, parents and the larger community have ongoing, online access to the study as it develops.
	The study requires use of word processing or simple presentation software.	The study permits the use of a wider variety of technology choices.	The study requires sophisticated use of multimedia/hypermedia software, video, videoconferencing, simulation, dynamic geometry, databases and/or programming.

	Beginning	Developing	Accomplished
Active Exploration	The study can be completed in a limited amount of time, in a few areas, with teacher-generated tasks.	The study requires increased time and variety of tasks spent on exploration.	The inquiry requires students to spend significant amounts of time doing field work, labs, interviews, studio work, construction, etc.
	The study requires students to complete a series of teacher-constructed activities using limited resources.	The study requires students to engage in a basic investigation using a variety of sources.	The study requires students to engage in real (authentic) investigations using a variety of media, methods and sources.
	The study requires students to communicate what they are learning with a presentation to teacher audience (i.e. handing in as an assignment).	The study requires students to communicate what they are learning in a presentation to the classroom audience.	The study requires students to communicate what they are learning with a variety of audiences through presentation or exhibition.

	Beginning	Developing	Accomplished
Connecting with Expertise	Students hear or read about relevant information only from the teacher, or through resources provided by the teacher.	The study involves speakers or interviews with experts outside the classroom.	The study requires students to observe and interact with adults with relevant expertise and experience in a variety of situations.
	Students have limited or no access to experts.	Guest speakers, other teachers, older students or other adults are available in a limited, perhaps one-time way.	The study requires students to work closely with and get to know at least one adult other than their teacher.
	The teacher designs the task in isolation (without input from external expertise).	The teacher designs the task in consultation with experts, either directly or indirectly regarding the topic for inquiry.	The teacher designs the task in collaboration with experts, either directly or indirectly. The inquiry requires adults to collaborate with one another and with students on the design and assessment of the inquiry work.

	Beginning	Developing	Accomplished
Elaborated Communication	Students have little or no opportunity to discuss their work with others.	The task provides opportunities for students to share their ideas with each other. Opportunities to respond to each other's ideas may be limited.	Students have extended opportunities to support, challenge and respond to each other's ideas as they negotiate a collective understanding of relevant concepts. Students have opportunities to negotiate the flow of conversation within small and large group discussions.
	The task dictates the form of expression that students may use. Students have little opportunity to reflect on how the selected medium enhances their message.	Students have limited opportunities to choose forms of expression and to reflect on what media would best communicate their message.	Students have opportunities to choose forms of expression appropriate to the task (e.g. Powerpoint, iMovie, tableau, mime, puppet show, readers' theatre, drum solo, interpretative dance, artwork, debate, etc.) and to reflect on the impact of their choices.
	The inquiry requires students to communicate what they are learning to a teacher audience (e.g. handing it in as an assignment).	The inquiry requires students to communicate what they are learning with a classroom audience.	The inquiry provides opportunities for students to communicate what they are learning with a variety of audiences.

We remember what we teach



Source: National Training Laboratories, Bethel, Maine

Taking Inquiry out of the Classroom

Making the most of varied resources will help to create authentic and exciting inquiries in your programme. Planning for inquiry-based learning outside of your classroom helps students to make meaningful and memorable connections. *Consider a fresh perspective on field trips.*

Field trips. We've all been there… counting heads, herding crowds, wishing a presenter would make a connection to your lesson of last Tuesday.

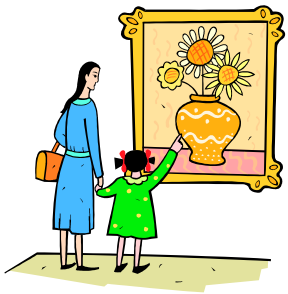
Consider your last trip to a museum. While you enjoyed the experience, what did you retain from your visit? As adults, many of us experience a new venue (insert museum, zoo, park, science center) with enthusiasm and enjoyment. But as we look back on our day, we must consider how much we were able to absorb. We may be lucky enough to recall one painting, one display or one wild animal moment that stuck with us.

How can we help students get more from a day out of the classroom?

How can we avoid the 'ping-pong' of students racing from one exhibit to the next? How can we set them up so that the learning that takes place is driven by the concepts and lines of inquiry of the unit?

Get learners out early.

Plan excursions for the beginning of a unit or inquiry. Give students the opportunity to acquire some background knowledge of a new topic before and while on a field trip. This will help them to formulate questions that have true meaning for them. It will also allow you to assess what students already know so that you can plan accordingly. If possible, visit the venue on your own beforehand so that you can prepare your students adequately for what they will see.



Background knowledge = Focus and interest

A student that has some background knowledge on stellar sea lions will find a visit to the Aquarium far more meaningful than one who has never heard of that particular species. Help students to know what they will see and experience. Time spent in preparation for the excursion will help to focus their attention, their inquiries and their purpose.

Consider more than one visit to the same venue or expert.

Familiarity and comfort will allow students to slow down. Slowing down allows them to focus and delve deeper into their work. It takes time to make meaningful connections,

observations and reflections. By planning multiple visits to a venue, students become experts of their new domain and will be better equipped to take responsibility for their learning.

Skip the scavenger hunt. Bring journals instead.

While ready-made worksheets and scavenger hunts provide tasks and a route map for students during a visit to a venue, they rarely captivate the interest or imagination of young learners. In fact, they encourage students to race through the exhibits in order to complete the task. Journals filled with observations, reflections, sketches, clippings and questions are authentic and personal documents of their learning process. Encourage questions, dialogue and reflection based on what they see as valuable and relevant. At times, expect complete sentences that reflect what they are observing. Allow ample time for this process to take place. Trust that they will be occupied – it will keep their attention far longer than a scavenger hunt.

Teach observation skills.

Teach students to use their senses. Allow for a variety of ways to record what their senses absorb. Take cameras, drawing pencils, magnifying glasses and crayons. Teach students to sketch (or bring in someone who can) so that every learner has a way to express and record what they see, hear and feel.

Create your own agenda.

Use the resources at a field trip site to your advantage. Recruit the time and help of the experts and educational staff to help you facilitate the learning experience for your students. Plan ahead and let them know exactly what your purpose is. Share your central idea, lines of inquiry and concepts with the staff members so that they will cater to your needs and ensure that students have a programme that inspires their learning in a way that can be continued back at school. As the teacher, you know best what your students need and YOU should be the facilitator in all the settings you visit. Be as active and engaged in the teaching and learning as you are in your own classroom.

Take your time.

Try to plan for large blocks of time that allow students to write, discuss, question and explore. The first hour in a new setting will always require a bit of exploration. The real learning will occur once they settle in and become familiar with their new environment. Fight the urge to over-plan. We all want to make sure a field trip is without 'idle' time, but with proper preparation and clear expectations of how students should be using the resources at the site, it is important to allow students ample time for inquiry.

Train your parent volunteers.

Often parents are required to guarantee the safety and care of our students and to engage in direct teaching and questioning with the students while on site. Because time is limited, it is important that volunteers guide students in their learning, model journaling and sketching behaviors, and help to facilitate the programme. It is well worth your time to help your volunteers to know exactly what you expect of them.

<u>Here are some examples that may be of use to your volunteers:</u>

When talking with students in small groups, individually or en route to the next activity, discussion and questioning about the students' thoughts is crucial. Ask students to take the next step in their responses, both verbal and written.

For example: Instead of saying… "Which animal is your favorite at the zoo?"

Try… "Tell me about the animal you find most interesting at the zoo. Why do you think that?"

"Open ended" questions that cannot be answered with one word contribute to thoughtful reflection and articulation.

Instead of saying… "How was your journal time?" Try… "Will you please share some of your observations with me? Or, What did you notice? Or, What happened that was interesting or unique?"

Try to ask "why" when students are stating an opinion. "Tell me more..." asks for clarification or further description. Encourage the students to use descriptive words to describe their observations and experiences.

Be a role model.

You and your parent volunteers need to model appropriate behaviors. Journal when kids journal. Sketch when kids sketch. Listen when kids listen. Ask questions when this is what kids are expected to do. By providing students with role models that demonstrate what is expected, we give students a better chance at success. This also will allow you and your parent volunteers to get more out of your experience on the field trip. It may also be worth mentioning that you hope volunteers will adhere to the same guidelines as students with respect to spending money. Perhaps that ice cream or Starbucks treat and souvenir shopping would be better suited to a weekend visit. Keep the focus where you want it!

Cheryl Babin
cbabinrace@gmail.com

Evaluating a written planner for an inquiry

After the planning process is completed, teachers should reflect on how effective their planning is. Questions to be considered for evaluating the quality of the planning documented on the planner are as follows.

Purpose

- ☐ Is the central idea clearly stated?
- ☐ Have appropriate connections been made between the central idea and the transdisciplinary theme?
- ☐ Do the teacher questions and provocations reflect the purpose?
- ☐ Are the teacher questions clear, open-ended and precise?
- ☐ Are the lines of inquiry appropriate to the development level and interests of the students?
- ☐ Is there a direct link between the concept-based questions and the activities?

Does the inquiry provide opportunities for:

- ☐ Exploring significant knowledge
- ☐ Understanding key concepts and related concepts
- ☐ Acquiring and applying relevant skills
- ☐ Developing responsible attitudes
- ☐ Reflection and taking action?
- ☐ Do the lines of inquiry and learning experiences promote international-mindedness?

Learning experiences

- ☐ Do the learning experiences reflect a variety of appropriate teaching and learning strategies?
- ☐ Does the availability and range of resources support inquiry for all students?
- ☐ Will the students be actively engaged, and challenged?
- ☐ Is there room for student-initiated inquiry?

Assessment

- ☐ Does the summative assessment link to the central idea?
- ☐ Do the assessment strategies and tools allow for individual differences?
- ☐ Are the criteria for success in this inquiry clearly identified for both students and teachers?
- ☐ Does the assessment allow the teacher to give feedback to the students and parents?

Articulating Boundaries in Open-Ended Questions

Instead of:	Try:
How could you use the globe?	How could you use the globe to discover facts about continents?
What kinds of things might you do on the fieldtrip?	What kinds of things might you do on the fieldtrip that will help you learn and keep you safe?
What are some ways you could solve that problem?	What are some ways you could solve that problem using the supplies in our classroom?

De-emphasizing Competition When Asking Questions

Instead of:	Try:
Who knows a good way to use the clay?	What are some different ways we might use the clay?
How can we make this graph easier to read?	What are some different ways to make this graph easy to read?
Whose drawing do you think is best? Why?	What good ideas do you see in the different ways people did their drawings?
Kerry, what strategies for writing neatly can you suggest to the others?	What strategies might help someone write more neatly?
Who has a better idea?	Who has a different idea?

Denton, *The Power of Our Words*, 2007

Referring to Concrete Experiences

Instead of:	Try:
How would you describe your writing?	What are some things you like about the character sketch you did of your sister?
What are some ways you could be a better student?	What did you do today during the partner share that helped you learn?
How do you feel about your math work?	What about this morning's math assignment makes you proud?
What do good scientists do?	What are some ways to be good scientists when we observe our worm farm today?
How do responsible people act?	What does it look like when people are responsible in the cafeteria?

Denton, *The Power of Our Words*, 2007

Socratic Questioning Categories

Purpose of Question	Examples
Clarification	What do you mean by….? What would _____ mean?
Probing Assumptions	What research evidence makes you believe…? On what criteria are you basing your position?
Probing reason and evidence	What research evidence backs up…?
Probing implications and consequences	What are the consequences of…? What does… imply about …?
Questions about viewpoint or perspective	How would… view that? How do the two ideas differ? How will you use the answer to that question?
Questions about the question	What other questions might be helpful?
Source: Based on Painter (1996) and Inquiry-Based Learning Using Everyday Objects by Alvarado and Herr	

IB Learner Profile Literature Connections

Balanced

Burns, Marilyn. *The Greedy Triangle.* Scholastic, 1994.

Dissatisfied with its shape, a triangle keeps asking the local shapeshifter to add more lines and angles until it doesn't know which side is up.

Polacco, Patricia. *The Keeping Quilt.* Simon & Schuster Books for Young Readers, 1988.

A homemade quilt ties together the lives of four generations of a Jewish immigrant family, remaining a symbol of their enduring love and faith.

Sharmat, Marjorie Weinman. *Attila the Angry.* 1st ed. New York: Holiday House, c1985. With the help of Angry Animals Anonymous, Attila the squirrel learns how to control his angry behavior.

Caring

Canizares, Susan. *Two Can Do It!* Scholastic, Inc.,1999.

Photographs and simple text present various things that people can do together, including reading, playing and hugging. Nice section in back of book titled; Care about each other.

Penn, Audrey. *The Kissing Hand*. Child Welfare League of America, 1993.

When Chester the raccoon is reluctant to go to kindergarten for the first time, his mother teaches him a secret way to carry her love with him.

Peet, Bill . *The Wump World.* Houghton Mifflin, 1970.

The Wump World is an unspoiled place until huge monsters bring hordes of tiny creatures from the planet Pollutus.

Raatma, Lucia. Caring. Mankato, Minn.: Bridgestone Books/ Capstone Press, [1999], c2000. Describes caring as a virtue and suggests ways in which caring can be shown, such as recycling, donating to charity, helping others, and listening.

Raatma, Lucia. Consideration. Mankato, Minn.: Bridgestone Books/Capstone Press, [1999], c2000. Describes consideration as the virtue of being thoughtful and suggests ways in which consideration can be shown.

Stuve-Bodeen, Stephanie, 1965-. Elizabeti's Doll. 1st ed. New York: Lee & Low Books, c1998. When a young Tanzanian girl gets a new baby brother, she finds a rock, which she names Eva, and makes it her baby doll.

Wong, Janet S. *The Trip Back Home.* Harcourt, 2000.

A young girl and her mother travel to Korea to visit their extended family.

Zolotow, Charlotte. *My Grandson Lew.* Harper & Row, 1985.

Together Lewis and his mother remember Grandpa who use to come in the night, when Lewis called.

Communicators

Hobbs, Will. *Howling Hill.* Morrow Junior Books, 1998

While separated from her family in the wilderness area along the Nahanni River, a wolf pup discovers that she can express her loneliness in a long, loud howl.

Lester, Helen. *Hooway for Wodney Wat.* Houghton Mifflin, 1999.

All his classmates make fun of Rodney because he can't pronounce his name, but it is Rodney's speech impediment that drives away the class bully.

Inquirers

Cannon, Janell. *Verdi.* Harcourt Brace, 1997.

A young python does not want to grow slow and boring like the older snakes he sees in the tropical jungle where he lives.

Keats, Ezra Jack. *The Snowy Day.* Viking Press, 1962.

The adventures of a little boy in the city on a very snowy day.

Rey, H.A. *Curious George.* Houghton Mifflin, 1993.

The curiosity of a newly captured monkey gets him into continuous trouble, but he is saved by his friend, the man in the yellow hat.

Knowledgable

Sis, Peter. *Starry Messenger* Farrar, Strauss, Giroux, 1996.

Describes the life and work of the courageous man who changed the way people saw the galaxy, by offering objective evidence that the earth was not the fixed center of the universe.

McDonald, Megan. *Insects are my Life.* Orchard Books, 1995.

No one at home or school understands Amanda Frankenstein's devotion to insects until she meets Maggie.

Open-Minded

Binch, Caroline. *Gregory Cool.* Dial Books for Young Readers, 1994.

When he goes to visit his grandparents and his cousin on the island of Tobago, Gregory misses home at first, but as he gets to know both the island ways and his relatives, Gregory begins to enjoy himself.

Garza, C. Lomas. *Family Pictures.* Children's Book Press, 1990.

The author describes, in bilingual text and illustrations, her experiences growing up in a Hispanic community in Texas.

Hamanka, Sheila. *All the Colours of the Earth.* Mantra Publishing, 1996.

Reveals that despite outward differences children everywhere are essentially the same and all are lovable.

Laden, Nina. *When Pigasso Met Mootise.* Chronicle Books, 1998.

Pigasso, a talented pig, and Mootisse, an artistic bull, live across the road from one another, but when conflicts arise they build fences that ultimately become modern art masterpieces. Includes biographies of the real-life artists, Henri Matisse and Pablo Picasso.

Van Allsburg, Chris. *The Widow's Broom.* Houghton Mifflin, 1992.

A witch's worn-out broom serves a widow well, until her neighbors decide the thing is wicked and dangerous.

Woodson, Jacqueline. *The Other Side.* Putnam's, 2001.

Two girls, one white and one black, gradually get to know each other as they sit on the fence that divides their town.

Zolotow, Charlotte. *William's Doll.* Harper & Row, 1972.

William's father gives him a basketball and a train but these do not make him want a doll less.

Principled

Aliki. A weed is a flower: the life of George Washington Carver. New York: Simon and Schuster Books for Young Readers, c1988. Brief text and pictures present the life of the man, born a slave, who became a scientist and devoted his entire life to helping the South improve its agriculture.

Brown, Marc Tolon. Arthur and the true Francine. Boston: Little, Brown, c1996. Francine and Muffy are good friends until Muffy lets Francine take the blame for cheating on a test.

De Groat, Diane. Liar, liar, pants on fire. New York: SeaStar Books, 2003. Gilbert is nervous about portraying George Washington in front of the class, and he feels even worse when he cannot find his main prop.

Havill, Juanita. *Jamaica's Find.* Houghton Mifflin, 1986.

A little girl finds a stuffed dog in the park and decides to take it home.

Henkes, Karen. *Lilly's Purple Plastic Purse.* GreenWillow Books, 1996.

Lilly loves everything about school, especially her teacher, but when he asks her to wait a while before showing her new purse, she does something for which she is very sorry later.

McLenighan, Valjean. ; Jones, Brent. I know you cheated. Milwaukee, Wis. : Raintree Editions, 1977. A young child cheats on a spelling test and learns an important lesson in self-respect.

Pfister, Marcus. *Milo and the Magical Stones.* NorthSouth Books, 1997.

A mouse discovers an extraordinary stone that can bring delight or disaster to the world. Halfway through the book splits into two sections, each offering a different ending.

Polacco, Patricia. Chicken Sunday. New York: Philomel Books, c1992. To thank Miss Eula for her wonderful Sunday chicken dinners, three children sell decorated eggs to buy her a beautiful Easter hat.

Sharmat, Marjorie Weinman. ; Oechsli, Kelly,; (Illustrator - ill.). Walter the Wolf. New York: Holiday House, 1975. Tired of being perfect and never using his perfectly matched fangs, Walter the wolf yields to temptation.

Stuart, Jesse. *A Penny's Worth of Character.* Jesse Stuart Foundation, 1993.

Shan is dishonest with the storekeeper in his rural Kentucky community, but he feels better about himself after his mother forces him to put things right.

Reflective

Bang, Molly. *When Sophie Gets Angry—really, really angry*. Blue Sky Press, 1999.A young girl is upset and doesn't know how to manage her anger but takes the time to cool off and regain her composure.

Ziefert, Harriet. *Sarah's Questions.* Lothrop, Lee & Shepard Books, 1986

A little girl asks many questions about the world while taking a walk with her mother.

Zolotow, Charlotte. *Who is Ben?* Harper Collins, 1997. On a moonless, starless night, a young boy feels at one with the darkness, thinking about where he came from before he was born and where he will go after he dies.

Risk-takers

Hoffman, Mary. *Amazing Grace.* Dial Books for Young Readers,1991.

Although a classmate says that she cannot play Peter Pan in the school play because she is black, Grace discovers that she can do anything she sets her mind to do.

Lester, Helen. *Hooway for Wodney Wat.* Houghton Mifflin, 1999.

All his classmates make fun of Rodney because he can't pronounce his name, but it is Rodney's speech impediment that drives away the class bully.

Mayer, Mercer. *There's a Nightmare in my Closet.* Dial Books for Young Readers, 1990.

At bedtime a boy confronts the nightmare in his closet and finds him not so terrifying after all.

Thinkers

Barber, Antonio and Lynch, Patrick. *Catkin.* Candlewick Press, 1994.

When a tiny, magical cat carelessly allows a young girl to be captured by the Little People, he must confront her captors and solve three cunning riddles in order to rescue her.

Lionni, Leo. *Swimmy.* A. Knopf, 1987.

Swimmy, a small black fish, finds a way to protect a school of small red fish from their natural enemies.

Slobadkina, Esphyr. *Caps for Sale.* W.R. Scott, 1947.

A band of mischievous monkeys steals every one of a peddler's caps while he takes a nap under a tree.

Useful Websites about Inquiry Pedagogy

- www.inquiryschools.net
- www.thirteen.org/edonline/concept2class
- www.exploratorium.edu/ifi/resources/classroom/connect/
- www.eduscapes.com/tap/topic43.htm
- www.inquiry.uiuc.edu/
- www.youthlearn.org/learning/approach/inquiry.asp
- www.helsinki.fi/science/networkedlearning/eng/delete.html#new
- http://ilf.crlt.indiana.edu/
    - register to view real inquiry lessons: mainly for maths and science
- www.Learner.org
- www.learner.org/resources/series129.html
    - Register to see FREE professional video on demand. This 8 part series on Inquiry in Science has many relevant discussions and examples
- www.exploratorium.edu/ifi/workshops/fundamentals/index.html
- www.galileo.org/inquiry-what.html
- www.mcmaster.ca/cll/inquiry/inquiry.resources.htm

Professional Resource Books about Inquiry

Children's Inquiry: Using Language to Make Sense of the World
By Judith Wells Lindfors

Developing More Curious Minds
By John Barell

Creating Classrooms for Authors and Inquirers
By Kathy Short, Jerome C. Harste with Carolyn Burke

The Art of Inquiry: Questioning Strategies for K-6 Classrooms
By Nancy Lee Cecil

Comprehension and Collaboration: Inquiry Circles in Action
Stephanie Harvey & Harvey Daniels

Inquiry Based Learning using Everyday Objects
Amy Edmonds Alvarado & Patricia R. Herr

Integrating Inquiry Across the Curriculum
Richard H. Audet and Linda K. Jordan

PYP Speed Dating Questionnaire

1) What grades and subjects do you teach?

2) Where are you from? - This reveals background. It throws better light on the person.

3) What is the one thing about yourself that you would like me to know?

4) How long have you been in a relationship with the PYP?

5) What do you think is the most important value in a relationship with an INQURY based programme?

6) Do you want to commit to a career in an IB school? This is important, as it will reveal if both are moving in the same direction - towards or away from marriage to the PYP.

7) What do you look for in a teaching partner?

8) Do you like children?

9) What are you most proud about?

10) Which is your favorite professional resource book? Both of you can discuss why you like a book - throws further in sight into personality.

11) Which is the last book you read (professional or personal)?

12) Share one personal success story that you believe to be "true inquiry in action" that occurred in your classroom.

PYP Learning Environment Bingo

Find someone who uses student led conferences to report to parents	**Find someone who has read an article on learning environments within the last year**	**Find someone who uses portfolios within their classroom**	**Find someone who has read a book about inquiry within the last year**	**Find someone who has worked within a team teaching arrangement with another teacher**
Find someone who has worked in at least three different countries	**Find someone who really enjoys working within their school environment**	**Find someone who has been in a team teaching arrangement with a number of teachers at once**	**Find someone who changes their classroom to suit the inquiry they are engaged with**	**Find someone who has worked within a multi age structure**
Find someone who has recruited staff to suit a specific school environment	**Find someone who collaborates with staff outside of their year level**	**Find someone who believes staff collaboration is strong at their school**	**Find someone who uses innovative information technology practices within their learning environment**	**Find someone who uses virtual learning environments**
Find someone who works within an open and flexible learning environment	**Find someone uses a team approach to use a shared learning area**	**Find someone who has used contemporary furniture within their learning environment**	**Find someone who has worked with architects to design a learning space**	**Find someone who uses pedagogy to inform learning spaces**
Find someone who uses alternative learning environments	**Find someone who has access to outdoor learning environments**	**Find someone who has designed a classroom to better suit inquiry**	**Find someone who can explain how their school has transformed learning spaces**	**Find someone who has been inspired to change their classroom after seeing something in the business world**

INQUIRY TOOLBOX

Good inquirers need a place to write…
(insert brilliant ideas here)