

## Inquiry-Based Learning in the 21<sup>st</sup> Century Look-fors

### **Look for 1: Classroom Environment**

The teacher creates an interactive, collaborative, open, and risk-free environment for inquiry.

#### **Indicators:**

- Teacher establishes a community of shared inquiry wherein all students listen and respond to each other with respect.
- Teacher fosters attitudes and skills for peer interaction among students.
- Teacher models his/her own inquisitiveness on a regular basis and in a variety of fashions.
- Teacher uses his/her own modeling to invite students to ask relevant questions.
- Students' questions, thoughts, and suggestions are accepted and recognized in the initial stages of creating an environment for inquiry.
- Teacher challenges students to reflect on the nature of their learning community on a continual basis, both verbally and by using written documentation.
- The teacher holds all students to the highest levels of intellectual achievement.
- The teacher embraces the use of collaborative, online communities and applications for inquiry, sharing, interaction, and learning.
- The teacher works to bring respectful discourse to all forms of communication, including the use of technology.

#### **Evidence:**

- In discussions, teacher models good listening and *quality responding* skills.
- Teacher uses language ensuring that all students are encouraged to listen and respond to each other.
- Teacher models his/her own inquisitiveness using a variety of objects and media full of complexity, novelty, and perplexing or problematic situations.
- Teacher invites whole class participation.
- Teacher lists students' initial questions.
- Teacher challenges students to analyze their own questions for qualitative differences, including lower/higher levels of challenge.
- Teacher challenges students to reflect on the quality of their learning community.
- Teacher and students identify specific characteristics of their learning/inquiry community (e.g. Importance of *respectful listening, quality of responding, accepting all ideas/questions/responses*).
- Teacher integrates components of an effective learning community into online class interactions in terms of sharing, respect, learning, and inquiry.
- Students add to, comment upon, and agree/disagree with their peers' contributions, giving good reasons for their comments.
- Students comment on teacher's modeling and begin to pose questions.
- Students document their Inquiry.
- Students clarify, elaborate, modify, and give reasons for their comments.
- Students understand the nature of online discussions and bring the same quality to their in class discussions, ensuring that all contributions are well thought out and well presented.

**Rubric:**

<b>Classroom Environment</b>	
<b>Innovating 4</b>	<ul style="list-style-type: none"> <li>• Teacher regularly/consistently models his/her own thinking and curiosity, using a wide variety of artifacts, situations, and real experiences.</li> <li>• Teacher has created a learning community wherein students consistently listen to and respond to each other with words and gestures that manifesting respect for each other.</li> <li>• Teacher consistently responds to students' comments and questions with empathy and attempts to involve the whole class in the discussion.</li> <li>• Teacher language regularly communicates an interest in students' thinking and questions and in all students responding to each others' ideas.</li> <li>• Teacher communicates the highest expectations (approaching perfection) for all students' abilities to inquire, think critically, and draw conclusions.</li> <li>• Teacher consistently models and expects respectful, empathetic online communication, demonstrating an interest in students' online content, continually encouraging online interest and participation, offering and encouraging authentic examples, and bringing and expecting the same rigor of classroom interactions into all online communication.</li> </ul>
<b>Applying 3</b>	<ul style="list-style-type: none"> <li>• Teacher often models his/her own thinking and curiosity.</li> <li>• Teacher has created an environment where students often listen to each other and respond to peers' comments, questions, and ideas.</li> <li>• Teacher's language often reflects the desire for students to expand and develop their own thinking as well as to involve the whole class in discussing and thinking critically about issues.</li> <li>• Teacher communicates high expectations (excellence) for students' involvement and achievement.</li> <li>• Teacher often models and expects respectful, empathetic online communication, demonstrating an interest in students' online content, often encouraging online interest and participation, offering and encouraging authentic examples, and often brings and expects the same rigor of classroom interactions into all online communication.</li> </ul>
<b>Moving 2</b>	<ul style="list-style-type: none"> <li>• Teacher seldom thinks aloud and models his/her own curiosity.</li> <li>• Students seem to listen more to the teacher than to peers.</li> <li>• Teacher expectations for success focus on certain students but not all.</li> <li>• Teacher does not monitor online work, and does not model curiosity online, and does not consistently expect student effective online use.</li> </ul>
<b>Beginning 1</b>	<ul style="list-style-type: none"> <li>• Teacher never models his/her own thinking.</li> <li>• Students seem not to listen to each other and to focus only on what the teacher says.</li> <li>• High expectations for involvement and critical thinking are not reflected either in teacher's words or behavior.</li> <li>• Teacher either does not use online communication with the class or does not emphasize its use with all students.</li> </ul>

**Tips:**

<b>Classroom Environment</b>	
<b>Innovating</b> <b>4</b>	In the environment of a good learning community, teacher and students have strong regard and respect for each others' ideas, questions, and comments. How and when do we encourage students to listen and respond to their peers and not just to the teacher? How do we encourage students to take more responsibility for their own learning? Under what circumstances do we offer students choices about content objectives, resources, strategies, and means of assessment? How do we involve them in making decisions about classroom management (e.g. "How shall we organize ourselves for maximum learning? for active listening and paraphrasing? for asking high level questions?"), about what the students need/want to learn, and about how to go about learning content? Teachers understand that a good learning community in a classroom is extended, deepened, and solidified by a good learning community online and takes the same expectations about choice, responsibility, respect, objectives, and management and translates these key components to the online space used for classroom inquiry-based learning. Teachers involve the students in setting the bar and taking responsibility for their learning and learning community (including their online community where applicable), continually modeling high expectations.
<b>Applying</b> <b>3</b>	How often do we encourage students to use the language of <i>quality responding</i> (e.g., "Please tell me more about your thinking. How did you arrive at that conclusion? Who would like to add onto Maria's thinking? Who agrees/disagrees? What kinds of questions do we need to ask about this situation?) What occurs when students are involved in making some of their own decisions about content and process? Teachers should consider how online communication is discourse and ask students to disagree and agree, to consider situations and appropriate questions, to challenge one another respectfully, and to model this behavior in their interactions.
<b>Moving</b> <b>2</b>	To what degree have we reflected on our own ways of inquiring and about the things we observe and wonder about? How often do we notice the kinds of questions we ask and do not ask? How comfortable are we with students' questions, both on and off topic? Teachers should evaluate the content, way of inquiry, observations, and what is asked and not asked in the classroom online learning community.
<b>Beginning</b> <b>1</b>	To what extent do we feel that we need to know the answers to all questions related to our subject? How comfortable are we with students conversing with each other, sharing ideas, and generating content-related questions? To what extent do we believe that students have experiences and ideas to contribute to the teaching and learning of any unit? To what degree do we believe that students should share in decision making about what they are learning? To what degree do we believe that student input is directly related to engagement and motivation to learn? To what extent do we believe that students' achievement is dependent upon their engaging in more complex thought processes and not in just memorizing facts? Teachers know that the online community is about thinking and learning and not just repeating ideas and that real student engagement and motivation to learn involves more than routine online communication.

## Look for 2: Student Questions

The teacher creates opportunities for students to generate questions on their own and/or collaboratively.

### Indicators:

- Teacher models the Observe, Think, and Question approach in both traditional and online environments.
- Teacher provides time for students to make observations about artifacts and to share their observations with their peers.
- Teacher provides time and opportunity for students to work collaboratively to generate questions.
- Teacher provides space and opportunity for students to work collaboratively in the online learning community.
- Teacher encourages students to organize/classify their own questions, to critique questions individually and collaboratively, and to share questions with the large group.
- Teacher acknowledges, accepts, and helps to clarify all students' questions.
- Teacher provides opportunities for students to organize/classify questions and to identify those that are appropriate and important for the unit.
- Teacher gradually begins to integrate some of students' questions into the unit of instruction.
- Teacher encourages students, where appropriate, to find their own artifacts related to the unit that might stimulate curiosities.
- Teacher encourages students to extend their inquiry by sharing artifacts in their online communications.

### Evidence:

- Teacher clearly differentiates between “observations” that can be agreed upon (using all senses) and “conclusions” that are inferences from observed data.
- Teacher asks for student feedback on their observations.
- Teacher helps students to identify the prior knowledge activated during observations (.
- Students are able to differentiate between observations, related thoughts, opinions, and inferences.
- Teachers provide time for students to share their questions/wonderings/speculations with partners and/or with groups.
- Teacher helps students to compare and contrast their questions, differentiating between lower and higher levels of intellectual challenge.
- Students write down all questions, classify them, and then select the ones they find the most relevant, ones they think are the most important, or ones to which they think they need to find answers.
- Teacher and students post the students' best questions around the room.
- Students document and date their inquiry questions.
- Teacher guides students through the questioning process to identify potential essential questions for the unit.
- Teacher models and guides students so their posting of inquiries, responses to other inquiries, as well as their speculations, wonderings, and considerations of observations carry through all online collaboration and postings.
- During the unit, teacher asks students to reflect on their own questions (e.g., Which have been answered? Which did we modify?)

*21<sup>ST</sup> CENTURY*  
*TEACHING AND LEARNING SERIES*



- Students gradually assume responsibility for posting their "best" questions throughout the unit, monitoring and reflecting on them throughout the unit.
- Students identify their own artifacts, situations, or pictures related to the unit that can be used for the Observe, Think, and Question sessions .
- Students understand the value of their contributions as members of an online community of inquiry.

**Rubric:**

<b>Student Questions</b>	
<b>Innovating 4</b>	<ul style="list-style-type: none"> <li>• Teacher is at ease working with students regularly as they observe, think, and generate questions.</li> <li>• Students become very proficient at differentiating between observations and inferences.</li> <li>• Students can generate important questions related to content; they can analyze, classify, combine, and prioritize in accordance with stated unit objectives and concepts.</li> <li>• Teacher and students exhibit highly cooperative behaviors of listening and responding while working collaboratively.</li> <li>• Teacher is proficient and comfortable with building, facilitating, leading, and coaching the classroom online community.</li> <li>• Students readily apply lessons learned about observations and inferences and about analyzing, classifying, combining, and prioritizing questions and concepts to their online postings and interactions.</li> <li>• Teachers and students work cooperatively and collaboratively together online.</li> </ul>
<b>Applying 3</b>	<ul style="list-style-type: none"> <li>• Teacher often provides students with opportunities to examine artifacts and to generate observations, related thoughts, and questions.</li> <li>• Students seem comfortable with analyzing their own questions and are reasonably proficient at the group work required for this inquiry approach.</li> <li>• Teacher often provides opportunities to examine artifacts and to generate observations through the online learning community for the class.</li> <li>• Students seem able to analyze their questions when using the online community.</li> </ul>
<b>Moving 2</b>	<ul style="list-style-type: none"> <li>• When necessary, teacher will provide students with opportunities to observe, think, and question.</li> <li>• Group work is not conducted harmoniously, nor is it productive.</li> <li>• Teacher provides some online opportunities for students to think, question, and observe.</li> <li>• Online group work is not conducted in a way to achieve consensus or agreement.</li> </ul>
<b>Beginning 1</b>	<ul style="list-style-type: none"> <li>• Students seldom or never have opportunities to make close observations, to identify their own inferences, and to generate questions that could possibly become part of an ongoing unit.</li> <li>• Students do not take advantage of the online community to identify inferences or generate questions, or do so rarely.</li> </ul>

**Tips:**

<b>Student Questions</b>	
<b>Innovating</b> <b>4</b>	With highly self-directed and collaborative students, it will be relatively easy to engage in Observe, Think, and Question. Important questions include: To what extent are students given sufficient time to make close observations of content artifacts/experiences and the like? How often do we challenge students to make these observations and note their related inferences? How comfortable are we in helping students to organize their own questions with the possibility of using them within the content of a unit? How is the online community used as an enhancement and extension to class work around Observe, Think, and Question activities? How are the concepts of artifacts and experience introduced and reinforced in the class online space? How can we help students to organize their questions within the context of a classroom unit through the classroom online community?
<b>Applying</b> <b>3</b>	How often do we afford students practice in observing, thinking, and questioning? To what extent are students comfortable with organizing, classifying, and putting questions and statements into a priority list? And to what extent do we recognize those students with special needs, those who tend to participate less, or those who are shy and reserved? How do we ensure that students get practice posting inquiries online while mediating their work by organizing, classifying, categorizing, and prioritizing their thoughts? How do we allow students with special needs or differing learning styles to participate in the classroom online community?
<b>Moving</b> <b>2</b>	To what extent are students comfortable with the kinds of group collaboration required for good observing, thinking, and questioning? How are we accommodating students with special emotional, physical, and psychological needs in these collaborative processes? To what extent are we using graphic organizers posted around the room to aid all students in reflecting on their performances and modifying? How can students interact and collaborate effectively, respectfully, and with the same level of high order thinking when online? How can students with special emotional, physical, and psychological needs interact, remain safe, and work well collaboratively and online?
<b>Beginning</b> <b>1</b>	What facilitates and impedes our providing time during a unit for students to generate questions from content-related artifacts and experiences? What pressures might we feel to “cover” content and, therefore, not allow students opportunities to explore objects and generate important questions? To what extent do we believe we (i.e., the teachers) must ask all important questions within a unit? To what extent do we feel pressure to “cover” all or most important state content standards and how does this affect our working toward a more open learning and inquiring community? How is time used for online work and how can teachers ensure that there is sufficient time for the development and work required for an online learning community? How does the need to cover content translate to work done online?

### Look for 3: Critical Thinking/Curriculum Development

The teacher helps students to ask deeper or more critical thinking questions about the content being studied through in-depth collaboration. Student questions become incorporated into overall objectives of unit and the online learning community.

#### Indicators:

- Teacher sets out essential elements of the curricular unit: important content concepts, essential questions, objectives, goals, strategies, and assessments.
- Teacher uses the online community to describe key concepts, essential questions, objectives, goals, strategies, and assessments, setting up a part of the class online presence with these elements and allowing students to return to the expectations when needed.
- Teacher uses students' questions as supplementary objectives for long-term units and for the online community.
- Teacher engages the whole class in how to improve upon the depth and quality of students' initial questions during sessions such as Observe, Think, and Question.
- Teacher posts core course ideas online for students to review and consider, including student expectations to create deeper, more critical questions, and the core concept of Observe, Think, and Question.
- Teacher provides students with opportunities to ask different, more complex kinds of questions.
- Teacher introduces the concept of "critical thinking," using definition and question frameworks.
- Teacher engages students to ask critical thinking questions about claims, reports, and conclusions to determine their believability and acceptance.
- Teacher fosters student development of their own set of critical thinking questions to pose about complex phenomena related to subject matter.
- Teacher encourages student documentation of inquiry throughout the year.
- Teacher uses student online postings to understand, guide, assess, facilitate, and further student inquiry-based learning.

#### Evidence:

- Teacher objectives and strategies include challenging students to ask higher level questions and to answer them within the unit.
- Unit plans include instructional strategies that help students to pose, develop, and investigate appropriate questions.
- Assessments include opportunities to reflect on the inquiry processes and on the kinds of questions posed.
- Teacher tracks students' progress through their online postings, which becomes an essential element for teacher assessment of student work and for teacher assessment of the success of an instructional approach.
- Teacher challenges students to ask questions about content that can be used as curricular objectives and guides.
- Teacher introduces question frameworks.
- Teacher models how to ask different Levels of Questions (using a framework such as Three Story Intellect).
- Teacher uses students' questions as references to identify varying levels and complexities of students' questions.

*21<sup>ST</sup> CENTURY*  
*TEACHING AND LEARNING SERIES*



- Teacher uses questioning frameworks in helping students to build upon their original questions, thereby making the questions more complex, more intellectually challenging, more generalized, or more representative of higher levels of intellectual behavior.
- Teacher encourages students to ask questions about complex phenomena in order to ascertain believability, acceptance, and reliability/validity of the phenomena.
- Students develop specific questions they need to ask to answer the question “Should we believe what we hear/read/see related to this situation?”
- Students fashion critical thinking questions in a format for quick reference, modification, and extension.
- Students use questions when engaging subject matter content, either in class discussions or in other documentation methods.
- Students document their inquiry process to ask critical, complex questions at the beginning, middle, and end of a unit.
- Students pattern their online interactions on what they have learned in class, continually questioning the validity of ideas, using questions to further their learning, and adding complexity to their thoughts and assumptions.

**Rubric:**

<b>Critical Thinking/Curriculum Development</b>	
<b>Innovating 4</b>	<ul style="list-style-type: none"> <li>• Students are expected and able to ask more complex questions, initially using question frameworks and then doing so on their own spontaneously.</li> <li>• Students are provided opportunities to develop a critical thinking framework of their own to use in analyzing complex situations.</li> <li>• Students and teacher spontaneously ask these kinds of more complex and critical thinking questions without being prompted.</li> <li>• Students' questions routinely become part of the unit objectives.</li> <li>• The unit content, objectives, strategies, and assessments are clearly delineated.</li> <li>• Students are expected to readily move from the face-to-face classroom environment to their online learning community environment, bringing their growing understanding of complex critical questions into their postings, interactions, and collaboration with other students in the class and with the teacher.</li> </ul>
<b>Applying 3</b>	<ul style="list-style-type: none"> <li>• Students are expected to frequently ask more complex and critical thinking questions.</li> <li>• Students may have asked and/or individually developed their own question framework to assess the believability and acceptance of claims.</li> <li>• Students' questions often become integrated within the structure of units.</li> <li>• Curricular elements are often fully articulated. Students frequently bring their developing critical inquiry methods to the classroom online learning community, often integrating these new approaches to inquiry when presented with new ideas or material.</li> </ul>
<b>Moving 2</b>	<ul style="list-style-type: none"> <li>• Students need to be encouraged to develop their questions into ones that are more complex and intellectually challenging.</li> <li>• They are not adept at using question taxonomies and/or frameworks to ask these "higher levels" of questions.</li> <li>• Their questions are seldom incorporated into units of instruction. Curricular elements may not be clearly articulated.</li> <li>• Students need encouragement and scaffolding when online in order to bring their inquiries to a more complex level.</li> </ul>
<b>Beginning 1</b>	<ul style="list-style-type: none"> <li>• Teacher asks most of the questions during a unit.</li> <li>• Teacher spends little or no time encouraging students to ask good questions and to refine them to more complex levels.</li> <li>• Students' questions are never incorporated into units of instruction. Curricular elements are not clearly in evidence.</li> <li>• Students rarely are required to post inquiries independently, usually responding directly to teacher prompts and not initiating complex questions. Novice students are not scaffolded in using new technologies.</li> </ul>

**Tips:**

<b>Critical Thinking</b>	
<b>Innovating 4</b>	At this level students should have developed their own set of critical thinking questions with which to assess the believability of claims and conclusions. To get to this point, we need is time and opportunity for students to practice developing good, general questions to ask: (e.g., Who is the source? What is the evidence? What assumptions are we making? What needs to be defined and clarified? What is the slant or bias reflected in the author's/presenter's claim?) Students have become adept at creating critical thinking questions online, and they post articulate, balanced, well-documented questions.
<b>Applying 3</b>	<p>To what degree do/can we integrate students' questions within the unit of instruction? This will depend upon the extent and depth of our planning for the unit. During this planning phase we need to ask: What are the major content concepts? What are the major sub-topics we wish to include? What are our objectives/intended outcomes? What are our teacher-generated essential questions? We should outline major instructional strategies that include how to provide students with opportunities to pose, develop, and investigate important questions. We also need to think ahead to the kinds of alternative, authentic assessments students might engage in at the conclusion of the unit. The major questions in terms of assessment is include:</p> <ul style="list-style-type: none"> <li>• How will students demonstrate the depth and quality of their understanding of major content concepts?</li> <li>• What alternative kinds of expression and media might they use for this purpose?</li> <li>• How will students' online postings be used to evaluate and assess their growth in formulating more complex and deeper questions?</li> <li>• How will their online choice of artifacts and experiences to express their understanding inform their progress in developing critical thinking inquiry skills?</li> </ul>
<b>Moving 2</b>	How can we help students develop more complex questions? How do we learn to ask more complex questions ourselves? Have we ever noted the kinds of questions we ask of friends, of media, or in various situations? Do we ever jot them down for reflection and analysis? If we know how we develop more complex questions (often while working with others on a project and listening to new ideas/questions), then we can help our students do the same. If we can be informed by online communities to see how others work together to collaborate, question, reflect, analyze, and question, we can strengthen our online classroom community. Once we are comfortable looking at our own questioning approaches and tendencies, we can help students ask deeper, more philosophic questions by allowing them to take their initial questions from artifacts/experiences and, working in groups, to combine them into questions that are applicable to more than one person, experience, or phenomena. We can help students to make their questions more general and more applicable to a wider set of experiences, more like "essential questions." We can also help students by introducing question taxonomies and frameworks and by using more complex students' questions as models from which to work. We can use our classroom online learning community as a record and artifact of our work together, of how we have grown and

	progressed, and of how we have formulated more complex questions and models.
<b>Beginning 1</b>	To what extent are we comfortable encouraging students to pose questions that might become part of the unit? Where can we look to for models of good questioning? How do we help ourselves become better questioners? What kinds of questions do we routinely ask? In any given unit, what do we want to know more about and to what extent can and will we share that with our students? How have we encouraged students to think and work independently on our online learning space?

#### Look for 4: Purposeful Investigations

The teacher models and students conduct purposeful, critical, and collaborative investigations to find answers to their questions and to work toward curricular objectives.

##### Indicators:

- Teacher identifies and communicates essential questions.
- Teacher publishes essential questions and expectations in the classroom online community.
- Teacher helps students to integrate their own questions with established essential questions.
- Teacher models critical thinking questions when using various resources.
- Teacher and students consider resources, use of time, and collaboration when creating a structure for investigations.
- Teacher and students self-monitor their own progress, noting how they are using key principles of a learning community previously established by the class.
- Teacher and students note new questions that arise during investigations.
- Teacher provides students with collaborative time to investigate and analyze what they're learning and to begin drawing their own conclusions.
- Teacher presents lessons on essential content concepts.
- Teacher and students actively discuss findings, posing their critical thinking questions.
- Teacher requires that in summative assessments students share their research findings in a variety of formats, recognizing different approaches to learning.
- Teacher and students utilize their online space to record, monitor, assess, discuss, and consider their progress together.

##### Evidence:

- Teacher helps to frame essential content concepts, sub-topics, instructional goals/objectives, and authentic assessments, eliciting as much input from students as possible.
- Teacher provides time to integrate students' questions with essential questions.
- Teacher provides time for students to determine how to answer some of their questions.
- Teacher presents lessons on content concepts that were not mentioned in the students' questions but that are essential to student understanding of the questions.
- Teacher uses the class online community as an extension of discussions for the communication of core concepts and goals and as a vehicle to integrate student questions into lessons.
- Students create lists of valid, reliable resources as well as questionable ones to avoid.
- Students and teacher identify appropriate resources, including local, national, and global resources through multiple media formats. Students actively go beyond initial sources to seek out alternative points of view.
- Students use collaborative time to share questions and findings.
- Students continually share findings and their critical thinking questions about research results.
- Students plan for final sharing of findings, identifying varied and alternative ways of communicating their understandings.
- Students consider technology tools to present their findings to their class and beyond.

**Rubric:**

<b>Purposeful Investigations</b>	
<b>Innovating 4</b>	<ul style="list-style-type: none"> <li>• Students are expected to excel at conducting investigations, individually and/or collaboratively.</li> <li>• Students are expected to sample a wide variety of resources to respond to essential questions.</li> <li>• Students are expected to regularly and consistently engage in a critical analysis of their findings, questioning the reliability of sources and the extent, quality, and significance of findings.</li> <li>• Students need little encouragement to seek other sources that might present a different point of view on their topic/question.</li> <li>• Students can identify a wide variety of possible ways of sharing their findings during a culminating project.</li> <li>• Students are approaching the level of self-direction expected of a college student.</li> <li>• Students perform their investigations individually and collaboratively with the same rigor and self-direction online as in the classroom.</li> <li>• Students are expected to understand the use of online tools and communication, and they ensure that their analysis of findings, their assessment of sources, and the significance of their findings is communicated and presented accurately, reliably, and appropriately online.</li> </ul>
<b>Applying 3</b>	<ul style="list-style-type: none"> <li>• Students need little encouragement to seek out different sources, to think critically about findings and to plan how they can share their findings and use information productively.</li> <li>• Students are expected to be mostly self-directed, assuming responsibilities for conducting purposeful investigations.</li> <li>• Students are expected to be mostly self-directed when posting and collaborating online, usually assuming responsibility when conveying their purposeful investigations online.</li> </ul>
<b>Moving 2</b>	<ul style="list-style-type: none"> <li>• Students need significant structure and guidance in order to conduct purposeful investigations and do not appear comfortable in self directed environments.</li> <li>• Students require structure and guidance in their online communication of their investigations.</li> </ul>
<b>Beginning 1</b>	<ul style="list-style-type: none"> <li>• Students are not sufficiently comfortable and confident conducting investigations without strong teacher direction.</li> <li>• Students are not confident or comfortable using their online learning community to convey their investigations or findings and are provided no scaffolding or resources to assist them.</li> </ul>

**Tips:**

<b>Purposeful Investigations</b>	
<b>Innovating 4</b>	Students who have become capable of self-management will gradually warm to the opportunity to plan how they will organize themselves to do research. How do students plan to answer their own questions? How will they organize time, access to materials, and ways of sharing the results of their investigations? How well do they function in small groups? To what extent are they engaging in critical analysis of their findings? How are they planning to share their findings with classmates and other “authentic” audiences? To what extent are they challenging themselves not only to report findings but also, and more importantly, to process and use information to, solve problems, make decisions, create new products, and conduct relevant inquires? How will they use the classroom online learning community to communicate their questions? How will they present their learning and investigations online? How will they function in the class online community with small groups? How will they ensure that they are continually solving problems, making decisions, creating new products, and participating in valuable experiences when working on the class online learning space?
<b>Applying 3</b>	How comfortable are students with thinking critically about resources and about the claims and conclusions of others? To what extent do they spontaneously ask questions about sources, slant, evidence, definitions, and assumptions? How often do students seek out sources that would confirm and/or refute controversial findings and conclusions? How readily do students think critically about online resources, ideas, or conclusions of others found online, and how do they communicate their resulting conclusions in the classroom online community?
<b>Moving 2</b>	How often do we challenge students to go off and find appropriate resources and then instruct them in how to think critically about what they find? How often do we require students to document in the class online learning space their explorations of resources and the process they follow to critically evaluate these resources?
<b>Beginning 1</b>	To what extent are we accepting students’ products that seem to reflect a “highlight, copy and print” mentality—that is, merely taking notes verbatim from other sources, without attribution and without checking on their validity and reliability? How have we prepared students to become more independent and self-reliant? Are we providing them with learning experiences where they must think and act on their own? Are we providing them with learning experiences in which they must make some decisions and choices on their own and be held accountable for their actions? To what extent does the teacher make virtually every important decision about content, about how to acquire new information, about approaches to learning, and about final assessments? In other words, how often do we teach students to act responsibly by allowing them to make some decisions about their own education? What basic expectations as to resources found online have we established? How have we discussed and reinforced standards of what is plagiarism in our digital world? How does behavior online relate to behavior face-to-face? How do we ensure that students act responsibly online?

### **Look for 5: Authentic Assessment**

The teacher encourages students to engage in alternative, authentic assessments to demonstrate the depth and quality of their understandings about major content concepts, ideas, principles, and skills. Students respond to questions and feedback on their final projects/products.

#### **Indicators:**

- Teacher and students plan final summative assessments that challenge students to use information productively and to answer their own questions.
- Teacher encourages students to consider a variety of presentational modalities.
- Teacher encourages students to suggest appropriate audiences for their projects' presentation.
- Teacher engages students in planning a rubric for self-monitoring and self-assessment of progress during the inquiry unit.
- Teacher recognizes the classroom online learning community as an integral component for communication, for the recording of work, for assessment, and for the raw material for student findings and culminating projects.
- Teacher and students plan opportunities for students to rehearse their presentations to obtain feedback and to answer peers' questions before their final presentations and assessment.
- Teacher provides opportunities for students to share their findings using multiple formats.
- Teacher asks students to pose questions about culminating projects.
- Teacher asks students to reflect on content and inquiry learning.
- Teacher asks students to record their reflections on the class online learning community.

#### **Evidence:**

- Teacher and students plan for sharing findings using various media and assessment experiences (written/oral/dramatic).
- Teacher and students consider technology media for sharing their findings.
- Teacher and students plan for rehearsal of their final presentations in order to obtain feedback from peers and teachers.
- Teacher and students design final assessments that provide students with opportunities to answer essential and their own questions.
- Teacher and students use a class-generated rubric for self-monitoring and final self-assessments.
- Teacher and students use the online learning community for tracking, assessing, and providing a record of the growth of the students' thinking and understanding of critical inquiry.
- Teacher provides final assessments that will engage students in complex, higher order thinking processes, afford opportunities for choice in means of sharing research findings, and replicate intellectual challenges faced during every day life.
- Students answer their own and teachers' essential questions and share findings.
- Students engage in question and answer with peers and/or other audiences.
- Students document (orally, electronically, and in writing) what they learned about the content of a unit and about the inquiry process.
- Students use a variety of presentational modes to share the depth and quality of their understandings.
- Students share control of the assessment processes.

**Rubric:**

<b>Authentic Assessment</b>	
<b>Innovating 4</b>	<ul style="list-style-type: none"> <li>• Students are able to plan, monitor, and evaluate their progress toward investigating essential questions (theirs and the teacher's), thinking critically about discovered data, and drawing reasonable conclusions.</li> <li>• Students share control with the teacher when preparing rehearsals, final presentations, and culminating activities/projects using a wide variety of alternative means of presentations.</li> <li>• All final products engage students not only in presenting data but also in thinking constructively about it.</li> <li>• Students excel at responding to questions about their findings and can modify these findings as the result of preliminary "rehearsal" presentations.</li> <li>• Students understand the value of using the online learning community to record their continual thinking about the essential course questions, to trace their progress and growth as a living portfolio of their work, and as a vehicle for their final presentation.</li> <li>• Students who continually and conscientiously contributed to the online learning community individually and collaboratively create all the raw material needed for closing activities.</li> <li>• Students are adept at fielding questions about their findings, because they have interacted with their fellow students in the classroom and online in challenging and respectful discourse.</li> </ul>
<b>Applying 3</b>	<ul style="list-style-type: none"> <li>• Students mostly engage in authentic, alternative assessments wherein they think productively about information collected during the unit.</li> <li>• Students are good at creating alternative media projects and responding to questions from peers and other participants.</li> <li>• Students' final, culminating projects, as well as their responses to questions from the audience and their peers, reflect an understanding of course content.</li> <li>• Students have mostly kept their online community work active and have created portfolios of most of their work towards becoming critical analytic users of inquiry learning approaches.</li> </ul>
<b>Moving 2</b>	<ul style="list-style-type: none"> <li>• Students are seldom afforded opportunities to share control over assessment experiences.</li> <li>• Students do not often engage in alternative means of sharing their understandings about content.</li> <li>• Assessments consist mainly of students' responding to teacher questions in a more traditional paper and pencil format.</li> <li>• Students reflect minimally upon their own work, using a teacher-prepared document with minimum explanation and elaboration of their self-assessments.</li> <li>• Students have participated online but only in reaction to teacher questions and not in a self-directed manner.</li> </ul>
<b>Beginning 1</b>	<ul style="list-style-type: none"> <li>• Students never have opportunity to plan their own assessments, all of which are teacher-made, standardized, or publisher-created assessments.</li> <li>• Students have little or no stake or vested interest in their work or projects. Students did no or very little online community posting, so were not given the opportunity to document their work in progress or to create their own</li> </ul>

	assessments based on the work they accumulated online.
--	--

**Tips:**

<b>Authentic Assessment</b>	
<b>Innovating 4</b>	One of the major considerations about assessment is the extent to which we are challenging students to demonstrate the depth and quality of their understanding of content. We want final assessments, as well as formative assessments, to allow students to share what they've found meaningful within their studies, and for this we need to use alternative forms of demonstrating understanding: various media (e.g., video, PowerPoints, Wikis, blogs, podcasts, vodcasts, screencasts, VoiceThreads), various art forms (e.g., pictures, poetry, literature, collage, dance, drama), and varied forms of writing (e.g., research papers, journals/diaries, personal profiles). We need to ask ourselves how often and to what extent are students challenged to express themselves in ways that reflect their own styles of learning and understanding. We need to leverage technology use to create a continual and permanent portfolio of work that's been done and as a vehicle for assessment. If students have continually documented their progress, then final assessments draw heavily on this record-of-progress created by online posting.
<b>Applying 3</b>	To what extent are students being prepared to use alternative as well as "authentic" means of sharing the findings from their research? How often do we afford students the opportunity to rehearse presentations before classmates and subject themselves to critical questions in order to better understand the answers to some of their peers' (and teachers') questions? To what extent are students provided with opportunities to modify initial presentations in order to meet criteria within the rubrics they have created with the teacher. How have students been given opportunities to draw upon their online learning community work to understand and assess the growth of their own learning and then to turn that learning and those findings into a final product?
<b>Moving 2</b>	At this level we want to think about the degree to which students engage in planning, monitoring, and evaluating their pursuit of educational goals. To what extent are we challenging them to identify what it is they want to accomplish and to ask themselves before the learning process "How will I go about accomplishing this goal?" during the learning process "How well am I doing?" and finally "To what extent did I or did I not achieve my goals? Why? What will I do differently next time?" How often do we challenge students to plan and monitor their progress through any project? In other words, are we challenging students to take some responsibility for decision-making with respect to their own learning? To what degree do they have a say and a stake in their educational progress? How has their experience with technology as a tool for communication, sharing, collaboration, analysis, evaluation, research, and discourse furthered their critical thinking skills and abilities?
<b>Beginning 1</b>	Here we might ask ourselves "What are the beliefs and assumptions I have about my students, my subject, and teaching/learning that lead me to make all decisions about students' learning in my classes? What do I think they are capable of? What limitations might my own thinking be placing on the extent to which I can challenge students to inquire, to set goals, and to take some control of their own learning? To what degree do I think that students can share in some of the decision making about learning in my class? Do I believe that all of our students can achieve at high levels of expectation, even those with special needs? If not, what do we

## 21<sup>ST</sup> CENTURY

TEACHING AND LEARNING SERIES



believe about students abilities to achieve and why? What are the foundations of my beliefs about students' abilities to achieve? What evidence do I have from my own learning and teaching experiences that high levels of expectation and challenge can reap rich rewards in terms of students' behavior and academic achievement? What are my beliefs about technology for communication, collaboration, self-directed learning, analysis, and discourse? How have I seen technology used in empowering ways professionally or by observing other teachers?

**Look for 6: 21<sup>st</sup> Century Skills:**

Teacher supports student use of 21<sup>st</sup> century skills and technology.

**Indicators:**

- Provides opportunities for development of 21<sup>st</sup> Century skills
- Allows for the student demonstration of their understanding about technology and how to use it effectively to achieve a specific purpose.
- Provides practice for students to find, access, and use credible information.
- Establishes teams of students who accomplish a shared goal while exhibiting trust and respect for each other.
- Guides students to recognize, understand, and respond positively to any and all types of changes.
- Provides opportunities for students to work independently whether it is in developing goals, managing time, or evaluating their learning or progress.
- Allows students the opportunity to prioritize, plan, and manage their learning to accomplish a goal.
- Encourages effective use of real-world tools by students to communicate, collaborate, and accomplish tasks.

**Evidence:**

- The teacher uses technology is an integral part of how teaching and learning happens.
  - The teacher uses technology for whole class, small group, and individual work.
  - The teacher empowers students with technology tools, encouraging and facilitating student learning.
2. The teacher infuses the teaching and development of the following 21<sup>st</sup> Century skills into instruction:
- Creativity and innovation
  - Critical thinking and problem solving
  - Communication and collaboration skills
  - Information literacy
  - Flexibility and adaptability
  - Initiative and self-direction
  - Productivity and accountability
  - Leadership and responsibility
- The teacher ensures hands-on instructional tasks for all students, involving technology, designed to mirror and enhance skills that are required for real-world professionals to be successful
  - The teacher groups and regroups students on computers and takes advantage of the distributed resources available on computers.

**Rubric:**

<b>21<sup>st</sup> Century Skills</b>	
<b>Advanced 4</b>	<p>The teacher continuously supports student use of 21<sup>st</sup> century skills and technology.</p> <p>As a result, the class is characterized by high levels (almost all students, almost all of the time, successfully) of the following: self-direction, initiative, and autonomy by students (individually or in groups); students critical reflection and review of their own and others' work; collaborative work on a complex project; understanding, valuing, and acceptance of traditions, beliefs, knowledge, language, and practices of diverse social groups; effective use of current technologies to enhance learning, communication, and real-world connections.</p>
<b>Proficient 3</b>	<p>The teacher usually supports student use of 21<sup>st</sup> century skills and technology.</p> <p>As a result, the class incorporates some of the following for most students to successful levels: self-direction, initiative, and autonomy by students (individually or in groups); students critical reflection and review of their own and others' work; collaborative work on a complex project; understanding, valuing, and acceptance of traditions, beliefs, knowledge, language, and practices of diverse social groups; use of current technologies to enhance learning, communication, and real-world connections.</p>
<b>Basic 2</b>	<p>The teacher occasionally supports student use of 21<sup>st</sup> century skills and technology.</p> <p>As a result, students are provided few opportunities to do any of the following and students show only minimal competence: self-direction, initiative, and autonomy by students (individually or in groups); students critical reflection and review of their own and others' work; collaborative work on a complex project; understanding, valuing, and acceptance of traditions, beliefs, knowledge, language, and practices of diverse social groups; use of current technologies to enhance learning, communication, and real-world connections.</p>
<b>Below Basic 1</b>	<p>The teacher does not support student use of 21<sup>st</sup> century skills and technology.</p> <p>As a result, students have no, or only minimal, opportunities to develop 21<sup>st</sup> century skills and to use technology to enhance learning. Learning activities are not collaborative, diversity is not recognized or valued, and technology is outdated.</p>

**Tips:**

<b>21<sup>st</sup> Century Skills</b>	
<b>Advanced 4</b>	What have you learned from your students? How do you incorporate and share their knowledge with each other in collaborative ways? In what areas has available technology assisted your students—e.g., online research, communication, problem solving, publication? What would you like to do more of or differently?
<b>Proficient 3</b>	What are some strategies you use to encourage students to become more self-directed in their learning? How do you have students access and use tools of real-world experts (scientists, mathematicians, historians) to investigate problems and develop solutions or explanations? What additional types of media could students use in the production of products or performances that exhibit or enhance their learning?
<b>Basic 2</b>	How do you determine the technology skill levels of your students and their ability to use these tools collaboratively? What supports do you need in order to become more proficient in your uses of technology? When planning your lessons, what criteria do you use to determine when and how technology might be integrated into your instruction to enhance learning? What help do you need in identifying specific resources (e.g. real world experts, media tools, instructional strategies) that will support learning?
<b>Below Basic 1</b>	When planning your lessons, what criteria do you use to determine when and how technology might be integrated into your instruction to enhance learning? On a scale from beginner to expert, where would you put yourself in terms of technology skills to support teaching and learning? How could these skills be enhanced?



**Inquiry-Based Learning in the 21<sup>st</sup> Century**  
**Course Objectives**

1. Analyze and adapt inquiry-based practices and create an open, risk-free environment that fosters inquiry.
2. Distinguish and apply different levels of questions, observations, and inferences.
3. Apply strategies that encourage opportunities to use technology when appropriate for critical questioning, research, and purposeful investigation.
4. Effectively utilize technology to develop and implement appropriate authentic assessments that demonstrate critical thinking.
5. Model the effective use of online learning communities as an enhancement, extension, and enabler of classroom learning goals
6. Facilitate the development of 21<sup>st</sup> Century skills of information literacy, information communication technology skills, teamwork, and collaboration.