Earth Science by Design

Classroom Observation Guide

Completed Example

This guide is intended to structure the classroom observations that partners make of each other.

The purpose of the classroom observation is to provide feedback to your partner and to the Earth Science by Design project staff about what actually happened in the session. We believe that this feedback can help teachers improve their teaching. It also helps the project staff know how these sessions embody the principles of Understanding by Design.

The guide is organized in terms of questions about actual behavior. You should focus on directly observable behavior and should *not* include opinions or interpretations of the behavior. Please try to be objective!

Whenever possible, provide specific examples of the behavior you observed. Include as much detail as you can. (i.e. "Teacher asked for thumbs up/down signal three times and distributed a short written quiz at the end of the lesson.")

No one class session will include all the behaviors described below, so some questions will remained unanswered, or will simply be answered "no" or "not applicable."

Date *September 20, 2002* Approx. # of students in class 25

Teacher name *Mrs. X.*

School *Circle Middle School*

Observer name *Observer Y.*

Unit name *Journey to Planet Earth*

This session is # _____*5*__ of ____*16*____ sessions anticipated in this unit.

(Please attach the unit planner as well as any handouts used by students during the session.)

Briefly describe the overall structure of this session:

The opening or introduction of the session:

At the beginning of class, Mrs. X displays an image of Buenos Aires, along with questions for students to answer. The following text is posted, ""Where on Earth do you think this image is from? What do you think the image shows? Write down your thoughts on a paper and discuss them with your team." She reminds students of an overarching understanding and an essential unit question that will be the focus of today's session. Mrs. X. tells students that today they will learn to recognize features in remote sensed images as well as ask questions about them. Mrs. X informs students how today's session relates to the final project. She helps them to recall the key concept of the previous session.

The main activities of the session:

Students are given a reference set of images with key features identified. Students examine printed images and a selected set of images on the Internet. They share and discuss ideas with team members as they complete a question sheet. The question sheet probes not only their ability to recognize features but also guides them to analyze images for geographic clues and evidence of Earth's systems.

Students quiz each other on image features.

The closing or wrap-up of the session:

At the end of class, students return to the Buenos Aires image and identify features in the image. Mrs. X informs the students of the location of the image and puts it into a larger geographic context with a map presentation. Students write, "I wonder…" statements, share them with teammates, and turn them into Mrs. X, along with the question sheets from their activities.

Describe Specific Teacher Behaviors Observed During <u>this</u> Session

Did the teacher introduce or review the essential questions of the unit? Describe.

Yes. Mrs. X. both stated the question and pointed to it on the bulletin board. She said, "Let's take a look at our essential questions for this unit, "Today we will focus on the second one,
How do images, maps, and models help us understand the Earth system?"

Did the teacher make clear to the students how the activities of this session are related to the essential questions and the unit goals? Describe.

Yes, indirectly. Mrs. X. used the expected outcome of the final project to connect today's activities with an essential unit question.

Did the teacher keep this session “on track” and aligned with unit goals, i.e. avoided “side trips” and tangential activities/discussions? Please describe.

Yes. When team 3 was exploring their image set, they noticed a storm and asked, "How do hurricanes begin?" Students began debating the issue among themselves. Mrs. X. intervened, suggesting they write down the question in the appropriate place on the question sheet. She assured them that they would have a chance to reconsider it later.

Did the teacher use informal methods to check for student understanding during the session? Please describe.

Yes. Mrs. X asked for a thumbs up/down signal at the beginning and at the end of class. She called on students to orally share their recollections of the types of information gathered by satellites. She instructed students to quiz their teammates on image features. She circulated among the teams while they were exploring and analyzing images, providing feedback as needed.

Did the teacher relate today’s learning experiences to the culminating performance assessment? If so, please describe.

Yes. In Mrs. X's words, "When your team plans its expedition to your chosen volcano, fault or other unique place, you will need to gather and interpret at least three images or maps. You will need to ask questions about what you see. What we learn today will help you with that part of your final project. Even if your team is planning a trip to the bottom of the ocean, as part of the voting public, you will need to be able to recognize these features when you listen to the presentations from other teams. This will enable you to make an informed decision about whose proposed project should receive funds for further research."

Did the teacher review or reinforce the expectations for the performance assessment?

Perhaps. When Mrs. X mentioned that all students would need to be able to identify features, she reminded them that they would evaluating presentations made by other teams and that they would need to be prepared.

Did the session include learning experiences that build the knowledge and skills that help students explore essential questions and big ideas? If so, describe the activities.

Yes. Students analyzed remote sensed images with the goal of not only identifying features but also of asking questions and gathering evidence of Earth system processes.

Did the teacher elicit student preconceptions or misconceptions and then use this information to guide the work of the session? If so, describe.

Not observed. See discussion below.

During this session, did students and/or the teacher use Web resources? Were they aligned with essential questions and free of embedded misconceptions? Did they add perspective to deepen student understanding? Please describe.

Students used EarthKam images and a NASA Earth from Space dataset during the computer portion of the activity. The volume of these datasets provides a comprehensive resource that lets students explore all over planet Earth. Both Websites use map interfaces to geographically orient students to the images.

Student Behaviors During <u>this</u> Session

Did students discuss or refer to the essential questions of the unit? If so, please describe.

The majority of students glanced at the essential questions when Mrs. X. pointed to them on the bulletin board.

Did students discuss or refer to the performance assessment? If so, please describe.

A member of team 5 said, "I wonder what kind of vegetation we'll find around our volcano."

Did students relate today's learning experiences to the big ideas? If so, please describe.

Not observed.

Did students seem to be attentive and engaged in the lesson? Describe.

For the most part, students talked to each other about the images they were directed to analyze. Some students were quite animated when quizzing each other. Many teams used a game structure for the quizzing. Some team members spent time socializing. However, all completed the assigned tasks.
When students were asked to give a show of hands or thumbs/up down signals, all of them participated.

Did students ask questions or make statements that go beyond fact gathering and that reflect conceptual struggles? If so, please describe.

Not observed. The discussion students had about their images were mostly focused on issues of orientation, geography and identification of features. The questions students turned in on their question sheet may reveal some of these.

Did students demonstrate their understanding (i.e. “I get it! Now I know what you mean by the rock cycle, etc.”)? If so, please describe.

Students demonstrated their ability to recognize features. During today's session, they demonstrated their understanding through only one of the facets, the facet of self-knowledge. As they quizzed each other, students made comments like, "I think I can pick these out on other images." Many students nodded their agreement as students identified features on the Buenos Aires image.

Reminder of the facets for later discussion (explanation, interpretation, application, perspective, empathy, self-knowledge)

In this session, were students asked to reflect upon and review essential questions? If so, how was this structured?

They did not review the essential question but did review the main goal of the lesson.

Were the students encouraged to monitor their own progress and learning? If so, please describe.

Students monitored progress within their teams when they quizzed each other.

Reflections on the Session by the Partners

After this session, discuss your observations of this session with your partner. Encourage your partner to interpret and reflect upon their actions. Use this space to record your joint reflections about the session.

When discussing the session, Mrs. X related that she had four goals for the lesson. She hoped students would ...

1) *understand that images are data that can be analyzed.*
2) *be to be able to recognize common features they might encounter in remotely sensed images.*
3) *become familiar with basic geography of the Earth (i.e. location of continents, and major countries).*
4) *ask questions as an attempt to begin to interpret remotely sensed images.*

She did not have enough time to go into depth on goal 4 with students. However, she discussed her intention to guide student questioning to a deeper level where questions focus on the Earth systems. The questions raised by students along with futher analysis of images will be the focus of the next session.

In a prior class Mrs. X had elicited preconceptions and misconceptions by showing an image and asking students, "Tell me everything you think you know about this image." She thinks that she may be able to document more misconceptions in tomorrow's session as students begin to interpret why features are where they are."