APPENDIX C – CODING EXAMPLE

General rules for breaking down a class period into segments:

(1) In each segment, students keep the same interactional patterns with their partners, the tool, and/or the teacher. For example, students created a series of relationships without discussion and then the teacher came to ask them about the descriptions. The teacher's intervention is labeled as a beginning of a new segment and this new segment is ended when the teacher leaves.

The following occasions indicate the beginning of a new segment:

- Students change modes (plan/build/test). (*change the interaction with tool*) [do not code every change if only a few seconds]
- Students encounter a technical problem. (*change the interaction with tool*)
- The teacher or researchers intervene. (*change the interaction with teacher*)
- Students and/or the teacher change the topic of discussions usually with a change of modeling activities. (*change the interaction with peer and/or tool*)
- Students work with the tool for a while, such as creating a series of factors or relations, and then begin a discussion. (*change the interaction with peer and tool*)

(2) What type of segment should be transcribed? (essentially word for word capture of discussion, may have coder comments)

- A segment is so informative that could possibly answer part of research questions.
- A segment provides a typical example (confirming evidence) of using strategies, scaffolds (teacher/peer/tool), and graphs.
- A segment includes statements or interactions that differ from what you think about learning, modeling, and strategy use (that may be the disconfirming evidence). Also, record your comments after the segment if possible.
- A segment that you'd like to include in the NARST papers or 2nd year paper.

(3) In the text file for Nudist coding, a segment should include a time mark, a summary sentence, and a detailed description or a transcript of the segment. SAMPLE:

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* School: GXXXXXXXXX
* Teacher: JXX MXXXX
* Unit/Exposure: Water Quality 1
* Session: 1
* Grade: 7
* Student 1: RXX F.
* Student 2: AXXX W.
* Date: 3/17/2000
* Period: D
* Tape No.: 010
* Video: Process
* Coder: Eric

000026          [time mark is six digits, HHMMSS]
As Ss are launching Model-It...          [explanatory comment]
RF: Do you wanna use what we put down? [use first/last initial when student can be identified]
AW: If we didn't use turbidity...
S1: So, does conductivity raise or lower ph? [use S1/S2 when student cannot be identified]
S2: (long pause) Lower.
S2: Choose water (refers to choosing unit in menu of choices)

000109
-----PLAN                  [they start off in PLAN mode]
RF: Let's create the stream
Ss try to create object using the New Object button, but get confused looking for
custom icon file.  They cancel and try dragging picture from the lower palette.
New object - CREEK, normal, custom icon, no description. [standard OBJECT text]
RF: Should we add some factors for this stream?
New Factor - CREEK turbidity, text (excellent/fairgood/poor), initial value excellent,
no description.        [standard FACTOR text, noting (new text) and initial values only since they changed]
While creating this factor, Ss try to make it numerical, and get confused by the
display when they change the range, then they say they understand, change back to text
New Object - ANIMALS, normal, custom icon, no description.

000500
-------BUILD
T: why would it be number, how could you do that? Think about that?
Create relationship, as mold increases, how much decomposition increases by a little,
has because statement. [standard RELATIONSHIP text]

000615
------- TEST
Ss open 5 meters, re-arrange the factors on screen, then run model.  Ss manipulate the
two independent factors, and observe the change. [Use Ss to indicated students, not "they"]
RF: Why does turbidity go down?
Ss manipulate the same two factors rapidly, making noises, commenting on the "pretty
graph" (the lines in the graph area criss-cross as they manipulate factors), laug
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