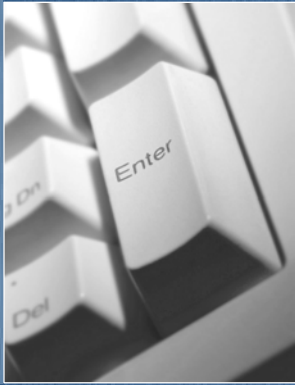


# Observation of Computer Use

## Observer's Manual

Deborah L. Lowther  
Steven M. Ross

*Jongpil Cheon*  
*Instructional Designer*



OCU



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# INTRODUCTION

## OBSERVATION OF COMPUTER USE



**T**his manual provides information and procedures needed to conduct classroom observations with the *Observation of Computer Use (OCU<sup>®</sup>)*. It begins with an overview of the *OCU* and how the instrument is used for multi-class and targeted observations. The manual then provides general guidelines for conducting school-based observations. This is followed with descriptions and operational definitions of the variables that comprise the *OCU*. Identifying and coding these variables in a consistent manner is essential for reporting reliable and valid data.

Receiving formal training of the use of OCU

Requesting approval for visiting a school

Completing OCU Data Collection Forms for each classroom

Completing an OCU Data Summary Form for each school

The skilled observer is able to improve the accuracy, authenticity, and reliability of observations through intensive training and rigorous preparation.

## 1

# Observation of Computer Use Overview

The Observation of Computer Use (OCU) (Lowther & Ross, 2001) is designed to capture exclusively student access to, ability with, and use of computers rather than teacher use of technology. Therefore, five primary types of data are recorded: (a) computer capacity and currency, (b) configuration, (c) student computer ability, (d) student activities while using computers, and (e) overall meaningful use of computers.

- *Computer configuration* is defined as the age and type of computers available for student use and whether or not Internet access is available.
- *Computer use* refers to the number of students working at each computer (e.g., alone, in pairs, in small groups), and the number of students who are computer literate (e.g., easily used software features/menus, saved or printed documents) and the number of students who easily use the data entry devices (e.g., keyboard, mouse, stylus) to enter information.
- *Computers/Digital tools* refer to the types of technology used during the observation. Categories include: desktop computers, laptop computers, portable digital devices, graphing calculators, information processors, and digital accessories (digital cameras, scanners, science probes).
- *Computer activities* focus on student use of computers with regard to the types of activities, subject areas of activities, and software being used. The computer activities are divided into four categories based on the type of software tool: production tools, Internet/research tools, educational software, and testing software.
- *Overall meaningful use of computers* refers to the degree to which computer activities reflect “meaningful use” of computers *as a tool* to enhance learning, as stated in the International Society for Technology in Education’s National Educational Technology Standards for Students (NETS-S).

With this type of recording system, several activities can be noted during the observation of one student working on a computer. For example, if a student gathered data from the Internet, created a graph from the data, and then imported the graph into a PowerPoint presentation, the observer would record three types of software tools as being observed: Internet browser, spreadsheet, and presentation.

Reliability data for the OCU (formerly the Survey of Computer Use or SCU) (Sterbinsky, Ross & Burke, 2004), show that observer ratings were within one category for 97% of the whole-school observations and for 91% of the targeted observations.

### Multi-class vs. Targeted (Single-class) Observation

The OCU is used for two types of direct classroom observation: multi-class (whole school, grade, or program) and targeted (single-class).

#### ■ Multi-class

Multi-class observations are used to capture routine classroom practices that involve student use of computers that typically occur on a regular basis in a whole school, one or more grades, or program. Therefore, this type of observation involves an extended timeframe (3 hours) in which multiple classrooms are randomly observed. For instance, one whole-school observation consists of an observer spending 3 hours in a school conducting 15-minute observations in approximately 10 randomly selected classrooms. If the observation were a whole-grade or whole-program, the observer would randomly visit classrooms in the selected grade(s) or those of teachers participating in the program.

Classes should be selected in a random (or non-biased) manner to help ensure the sample is representative of the teachers and the grades in the school. At the conclusion of the 3 hours, the observer records the frequency with which the various computer integration activities were observed. At least six (6) three-hour observation periods are recommended to obtain a broad and valid perspective of student use of computers.

#### ■ Targeted (single-class)

Even though the multi-class observations provide a comprehensive sample of computer integration practices that occur on a routine basis, student use of technology may be “missed” due to the random nature of whole school visits. Targeted observations involve observing one entire class period during a prescheduled or random visit.

For prescheduled observations, the teacher is asked to implement a technology integration lesson during a class period selected by the teacher. This approach provides data representing teachers' best practices because they know they are going to be observed and are aware of the lesson focus.

Random targeted observations also involve observing an entire class period, but they are unscheduled. For instance, if all 5<sup>th</sup> grade students have a laptop computer during the entire day and all of their teachers have received intensive professional development to use the laptop for all subject areas, the targeted visit to 5<sup>th</sup> grade classes could occur on any day. These data represent routine use of computers in a focused context.

The teachers for targeted observations are randomly selected from all of the eligible teachers to avoid schools providing a "hand-picked" list of their best teachers. Again, to ensure that a representative sample is collected, at least six targeted observations should be conducted at each school.

### The OCU Instruments

Both multi-class and targeted *OCU* observations require the use of two instruments: one for data collection during the observation and one for data summary after the observation.

#### ■ Observation of Computer Use: Data Collection Form

The *Observation of Computer Use : Data Collection Forms* are printed on blue paper and used to record computer configuration, computer use, computers/digital tools, and types of computer activities in which the students are engaged, and record brief descriptive notes of what is observed. One form is completed every 15 minutes. For a multi-class observation, one Data Collection Form would be completed for each classroom visited during one, three-hour, school observation period. For a targeted visit, one Data Collection Form would be completed every 15 minutes of the entire lesson.



### OCU Data Summary Form

There is a Multi-Class and a Targeted version of the *OCU Data Summary Form*. Both versions are used to summarize the computer configuration, computer use, computers/digital tools, types of computer activities observed during the visit, and the frequency with which meaningful computer activities were observed. The frequency is recorded via a five-point rubric that ranges from Not Observed to Extensively observed. An online version of OCU Data Summary Form is available as well as a paper-based “scan” version. Specific instrument details are provided below.

## OCU Observers

### All OCU Observers must:

- Receive formal training regarding use of the *OCU*
- Read this manual in its entirety
- Briefly review the manual prior to school observations
- Bring the manual to the school during observations to reference as needed
- Ensure that all *OCU* documents are complete, accurate, and submitted on time

## 2

# OCU Administration Procedures

Before visiting schools, the observer should ensure that the principal has approved the classroom observation process and that teachers know what to expect. However, do NOT share the OCU with any school personnel to avoid “teaching to the test (observation)”. Conversation with the school principal or leadership team prior to the first visit will pave the way for a successful experience.

## OCU Administration Guidelines

MULTI-CLASS	TARGETED (single-class)
<p><i>Prior to the Visit</i></p> <ul style="list-style-type: none"> <li>• Work with school contact to set day of the 3-hour visit. Note that teachers should not be apprised of the exact day or time of classroom visits.</li> <li>• Obtain map of the school with teachers' names and room numbers.</li> <li>• Obtain lunch, library, music, etc. schedules to plan visits.</li> <li>• Take the time to pencil in the top portion of an OCU Data Collection Form for each class you plan to visit.</li> <li>• Use the school map and schedules to arrange the forms in visitation order based on classroom locations and schedule. You will want to move between classrooms as efficiently as possible.</li> <li>• Call to ask about any special events or changes to the schedule that would affect your observation plan.</li> </ul>	<p><i>Prior to the Visit</i></p> <ul style="list-style-type: none"> <li>• Obtain the list of randomly selected teachers from CREP.</li> <li>• Work with school contact person or the randomly selected teachers to schedule each targeted classroom observation.</li> <li>• Call to ask about any special events or changes to the schedule that would affect your observation plan.</li> </ul>
<p><i>At the School</i></p> <ul style="list-style-type: none"> <li>• Always check into the office when arriving at the school.</li> <li>• Ask principal or school contact to identify any classes that have multi-age grouping or between class ability grouping in the classes.</li> </ul>	<p><i>At the School</i></p> <ul style="list-style-type: none"> <li>• Always check into the office when arriving at the school.</li> </ul>



## OCU Materials

A clipboard is useful for keeping the forms anchored and in order. Because you may need to erase marks, the *OCU Data Summary Form* must be completed with a Number 2 pencil. “Bubble” areas on the form must be darkened completely and erasures should be as clean as possible for accurate recording. Below is a list of materials needed to complete one multi-class or one targeted *OCU* observation.



### OCU Observation Materials

MULTI-CLASS	TARGETED (single-class)
<ul style="list-style-type: none"> <li>• Clipboard</li> <li>• <i>OCU</i> Observer's Manual</li> <li>• #2 Pencils (mechanical are best to avoid the need for a pencil sharpener)</li> <li>• <i>OCU: Data Collection Form</i> (10-12)</li> <li>• <i>Observation of Computer Use (OCU) Data Summary</i> (one)</li> <li>• Introductory Letter (optional)</li> </ul>	<ul style="list-style-type: none"> <li>• Clipboard</li> <li>• <i>OCU</i> Observer's Manual</li> <li>• #2 Pencils (mechanical are best to avoid the need for a pencil sharpener)</li> <li>• <i>OCU: Data Collection Form</i> (4-6)</li> <li>• <i>Observation of Computer Use (OCU) Data Summary</i> (one)</li> </ul>

## The OCU Observation Period

As previously mentioned, the *OCU* is used for 3-hour multi-class observations to obtain information regarding common, everyday computer integration practices and for targeted observations to observe specific computer integration strategies. Details of the multi-class and targeted observations are below.



### OCU Observation Period

MULTI-CLASS	TARGETED (single-class)
<ul style="list-style-type: none"> <li>• A multi-class <i>OCU</i> involves observing multiple classes during a three-hour block of time.</li> <li>• The observation period for each classroom is defined as 15 minutes.</li> <li>• Approximately ten (10) different classrooms will be observed.</li> <li>• Classes should be selected in a random (or non-biased) manner.</li> <li>• Never is a multi-class <i>OCU</i> to be completed unless <i>at least eight</i> (8) classrooms are observed.</li> <li>• Observation blocks should be selected so that both morning and afternoon activities on different days of the week are recorded over the course of the school year.</li> <li>• When conducting multiple multi-class <i>OCU</i> observations throughout the year, be sure to select different teachers for each observation – recycling the list when all teachers have been observed.</li> <li>• Typically, only <b>core subject</b> or those likely to use “conventional” pedagogy (not art, music, or physical education) are chosen. Some evaluations might also include observations of foreign language or special education classes.</li> </ul>	<ul style="list-style-type: none"> <li>• A targeted <i>OCU</i> involves observing one entire lesson (typically 45-90 minutes) during a prescheduled or random visit.</li> <li>• The observation period is recorded in 15 minute timeframes.</li> <li>• When conducting multiple targeted <i>OCU</i> observations, be sure to randomly select different teachers for each observation.</li> </ul>

## In the Classroom

When entering the classroom, adopt a friendly manner with both the teacher and students. When conducting multi-class observations, a sample letter (Appendix C) can be reproduced on letterhead stationery to hand to the teacher as a brief introduction and to clarify the purpose of your visit. After one or two visits to the same teacher's classroom, it will not be necessary to use the introduction letter when visiting.

While in the classroom, try to be unobtrusive so both students and teacher will behave "naturally," without feeling overly self-conscious about your presence. However, if students are engaged in use of computers or cooperative learning, it is usually appropriate and encouraged to observe from the computer area and to walk around the room to determine more clearly what they and the teacher are doing. Comments about observed activities can be quickly noted on the OCU Data Collection Form while you are in the classroom and expanded after leaving and before going to the next observation. Times when certain events in the classroom begin and end are often extremely useful for characterizing the classroom and should be noted as appropriate.

You may have unanswered questions at the end of an observation that are important in accurately recording one or more of the *OCU* categories. Clarifying questions may be asked if an appropriate time can be found (e.g., during a break or after school) to speak with teachers without disrupting classroom activities.

### ■ General Observation Guidelines

- If an unexpected interruption occurs during a 15-minute multi-class observation, the observation data can only be included if the class was observed for **at least** 10 minutes.
- If a class has a substitute teacher rather than the regular teacher, complete the observation if it is a multi-class observation, but do not complete it if it is a targeted observation.
- If the class you are observing goes to another location (e.g., library, computer lab) during your designated timeframe (15 minutes for multi-class), go with the class and continue collecting data **IF** the regular classroom teacher is participating in the instruction in the new location.

## 3

# Completing the OCU Instruments

## Observation of Computer Use: Data Collection Form

One *OCU: Data Collection Form* (Appendix A), which is printed on blue paper, is designed to capture 15 minutes of classroom observation data. Below are brief descriptions of the information to be completed.

**School**

Record the name of the school.

**Observer Name**

Record your last name in this space.

**Time In/Time Out**

For multi-class observations, the actual time you enter and leave the room should be recorded. For targeted observations, record each 15-minute timeframe of the observation. If the observation time is abbreviated, indicate how many minutes were actually spent in the classroom and provide the reason.

**Grade**

Please record the grade level(s) of the students in the class you are observing

**Observation Date and OCU #**

Please record the date of observation and the *OCU* number (if instructed to record the *OCU#*). The *OCU#* indicates which observation this is in the planned total visits per school for the year.

**Target?**

Mark “Yes” or “No” to indicate if this *Classroom Data Collection Form* is part of a targeted observation.

**Subject/Activity Overview**

Record subject(s) taught during the observation and add descriptors to help remember the lesson topic and the specific classroom being observed.

**NOTE**

To ensure confidentiality, teacher names are not to be formally recorded on these sheets. Instead, include descriptors in the Subject/Activity Overview space to help you identify classes, should you have questions for a particular teacher.

## OCU Data Summary Form

After completing all of the multi-class observations or completing a targeted observation, the individual *OCU: Data Collection Forms* should be used as a reference for completing the *OCU Data Summary Form* (Appendix B).

When completing the following sections of the *OCU Data Summary Form*, it is important that the scoring **not be a “counting” or “averaging”** from the individual observations. Instead, use the *Data Collection Forms* for reflection and for support of your impressions about the **extent** to which each major component was present in the school (multi-class) or during the lesson (targeted).

- Computer/Digital Tools
- Type of Computer Activities
- Overall Meaningful Use of Computers

When completing the *OCU Data Summary Form* for a multi-class observation, remember that you are making a subjective judgment for the whole school, program, or grade based on your impressions of all classrooms observed during this three-hour visit. When completing one for a targeted visit, you are making a subjective judgment on what occurred during the entire lesson.

The two factors that should influence your judgment most directly are:

- Number (frequency) of classrooms in which the strategy/event was observed (multi-class only)
- The **emphasis** (time) given to that strategy/event within classes (multi-class and targeted).

Neither factor should be applied in a rigid fashion, such that a frequency or time count leads directly to a particular rating.

Use the following rubric to rate each item on the *OCU Data Summary Form*.

### ■ Rubric for OCU Scoring

Rating	MULTI-CLASS	TARGETED (single-class)
(0) Not Observed	<ul style="list-style-type: none"> <li>Strategy was never observed</li> </ul>	<ul style="list-style-type: none"> <li>Strategy was never observed</li> </ul>
(1) Rarely	<ul style="list-style-type: none"> <li>Observed in only one or two classes</li> <li>Receives <b>isolated</b> use and/or little time in classes</li> <li><b>Clearly not a prevalent and/or emphasized component</b> of teaching and learning across classes</li> </ul>	<ul style="list-style-type: none"> <li>Receives <b>isolated</b> use and/or little time during this class</li> <li><b>Clearly not a prevalent and/or emphasized component</b> of teaching and learning during this class</li> </ul>
(2) Occasionally	<ul style="list-style-type: none"> <li>Observed in some classes</li> <li>Receives <b>minimal or modest time or emphasis</b> in classes</li> <li><b>Not a prevalent and/or emphasized component</b> of teaching and learning across classes</li> </ul>	<ul style="list-style-type: none"> <li>Receives minimal or modest time or emphasis during this class</li> <li><b>Not a prevalent and/or emphasized component</b> of teaching and learning during this class</li> </ul>
(3) Frequently	<ul style="list-style-type: none"> <li>Observed in many but not all classes</li> <li>Receives <b>substantive time or emphasis</b> in classes</li> <li>A <b>prevalent component</b> of teaching and learning across classes</li> </ul>	<ul style="list-style-type: none"> <li>Receives <b>substantive time or emphasis</b> during this class</li> <li>A <b>prevalent component</b> of teaching and learning during this class</li> </ul>
(4) Extensively	<ul style="list-style-type: none"> <li>Observed in most or all classes</li> <li>Receives <b>substantive time and/or emphasis</b> in classes</li> <li>A <b>highly prevalent</b> component of teaching and learning across classes</li> </ul>	<ul style="list-style-type: none"> <li>Receives <b>substantive time and/or emphasis</b> during this class</li> <li>A <b>highly prevalent</b> component of teaching and learning during this class</li> </ul>

### MULTI-CLASS OCU Data Summary Example

The observer visits ten classes at School A that were each equipped with five computers. During the visit, students are observed using *word processing* in six classes. However, the uses tend to be limited to only one or two students per class who are basically copying information from the text. The observer rates this school a "2" (Occasionally) on student use of *word processing*. Even though the strategy was used in a majority of classes, the observer felt that emphasis was minimal (rather than substantive or high) in this school on this day.

The observer visits school B, which also provides each classroom with five computers and sees students using *word processing* in five of ten classes. This time, she rates the school "3" (Frequently) because the practices were highly prevalent in the five classes, involving four to five students using word processing for a variety of higher-level tasks for much of the 15 minute observation period. The observer felt that, at this school on this day, student use of *word processing* was a frequently used, prevalent component of teaching and learning. Thus, even though it was observed in fewer classes at School B than at School A, the higher rating was given to School B.

### TARGETTED OCU Data Summary Example

The observer visits Classroom A, which provided one laptop computer to each student. After a five-minute introduction of assignment details, student pairs share a laptop to complete a *PowerPoint*<sup>®</sup> presentation on the history of their city. Students work on the presentations for 30-minutes. For the last ten minutes of the class, the teacher provides a review of tomorrow's activities. The observer rates this class a "4" (Extensively) for student use of *presentation* software because all students in the class worked cooperatively on presentations for the majority of the class.

The observer visits Classroom B to observe another lesson in a laptop classroom that had a 1-to-1 laptop to student ratio. The teacher begins the lesson by showing a 15-minute *PowerPoint*<sup>®</sup> presentation on the history of their city. The remaining 30 minutes of class involves all students but four completing an "Our City History" worksheet. The four students use laptop computers to begin developing their presentations. The observer rates this class as a "1" (Rarely) for student use of *presentation* software because the activity only involved four students.

## 4

# Computer Configuration

**Number of Computers for Student Use**

## Question 1

- Count the number of computers or laptops in the classroom which are available for student use.
  - None
  - Only 1
  - 2-4
  - 5-10
  - 11 or more

**Computer Age and Capacity**

## Question 2

- Select the capacity of computers for students in the classroom.
- The following features help you figure out the capacity.
  - Up-to-date
    - DVD-ROM/RW
    - 1 to 2 years old
  - Aging but adequate
    - Maybe a CD-ROM
    - 3 to 5 years old
  - Out-dated and limited in capacity
    - Over 5 years old

**Computer with Internet Access**

## Question 3

- Ask the teacher if connection to the internet is not easily determined.

**Question 4:** If students do not use computers or digital tools during the observation, mark “No” and stop the observation.



## 5

## Computer Use

## Percent of Students Using Computers

## Question 5

- Record the approximate percentage of students that used computers during the observation.
    - Only a few (less than 10%)
      - 1 to 2 students\*
    - Some (about 10–50 %)
      - 3 to 12 students\*
    - Most (about 51-91%)
      - 13 to 20 students\*
    - Nearly All (91-100%)
      - More than 20 students\*
- \*In a class with 25 students



## Students per Computer/Digital Tool

## Question 6

- Record how frequently students worked at computers or with digital tools.
  - alone
  - in pairs (two students)
  - in small groups (three or more students)
- If students rotate to and from a computer during the observation, record each grouping
  - If at the beginning of the observation computer #1 has one students writing a letter, then has two students creating a presentation, record:
    - “1” for alone
    - “1” for pairs

**Rate Student Computer Literacy Skills**

## Question 7

- ▣ Observe computer literacy skills of students using computer and tally the number of students for each level.  
e.g., locate/open programs, locate/select menu items, save/print documents, etc.
- ▣ Rate as “Not observed” if students do not engage in any of these tasks during the observation
- ▣ Scale
  - Poor
  - Moderate
  - Very good
  - Not observed

**Rate Student Keyboard Skills**

## Question 8

- ▣ Examine students' ability to use a keyboard to enter information –  
e.g., ease in locating keys, using shift, space, tab, enter/return, backspace/delete, etc. key.
- ▣ Rate as “Not observed” if students only use the mouse or only use the keyboard in a very limited manner (e.g., entering a password) during the observation.
- ▣ Scale
  - Poor
  - Moderate
  - Very good
  - Not observed

## Types of Computers and/or Digital Tools

## Question 9

Check all types of computers and/or digital tools that were used during this observation

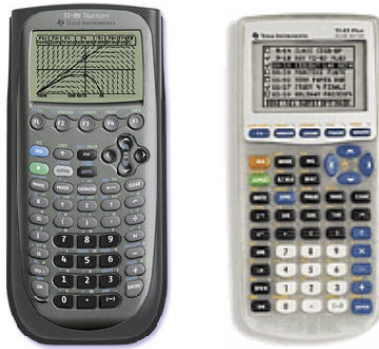
 Types of Computers and Digital Tools

 Laptop Computers

 Desktop Computers

 Portable Digital Devices


Graphic Calculator



Information Processor



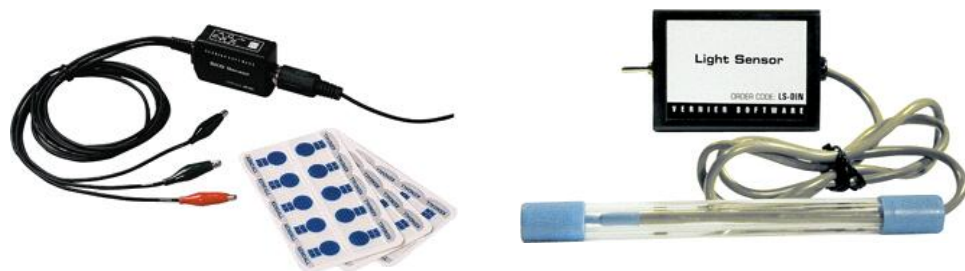
Digital Camera



Scanner



Probes



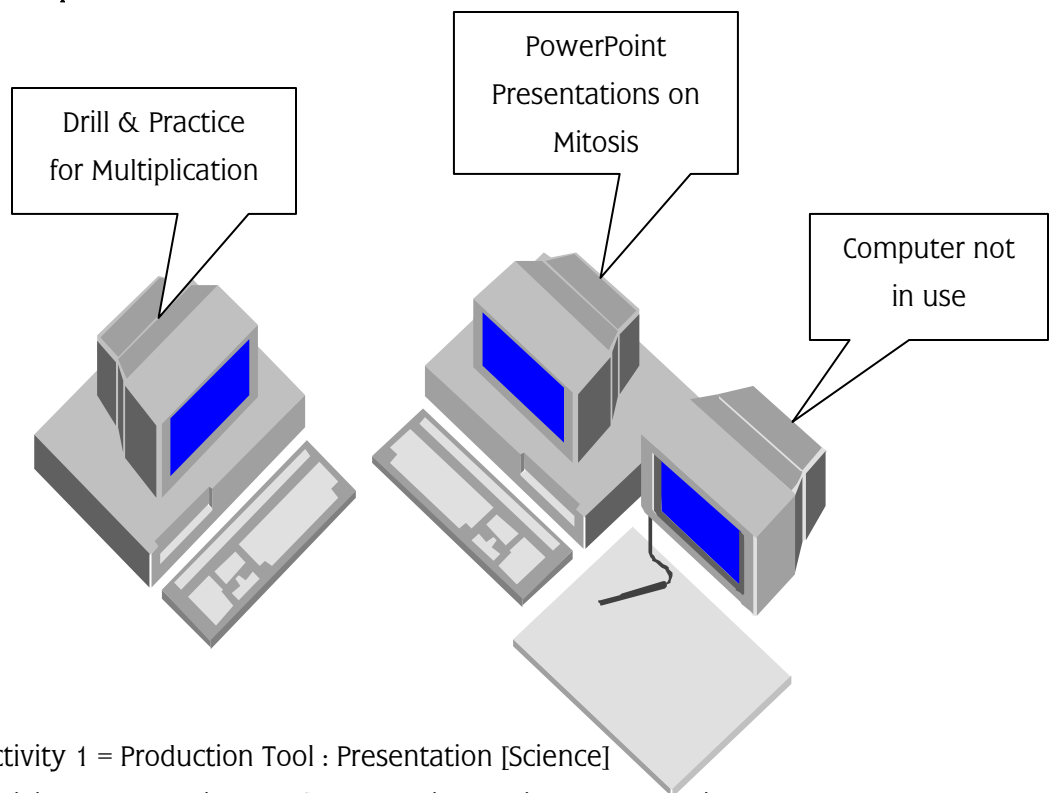
## 6

# Computer Activity

## General Guidelines

Observations of computer activities, such as frequency and types of computer activity, should be recorded by what is happening at each computer.

### Example



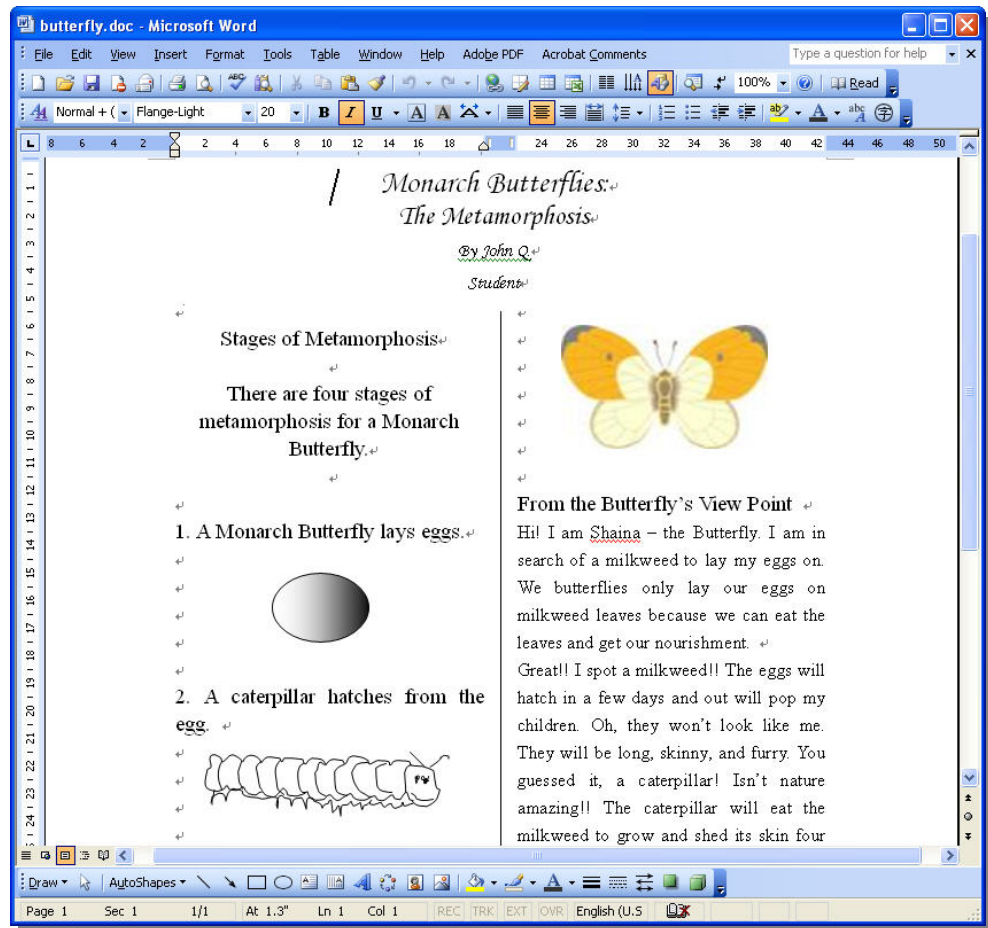
For example, to record Activity 1, place one tally mark for “Presentation” within the “Production tools” section. In addition, you should record the number of students involved same activities, the level of meaningfulness, and subject areas.

## Types of Computer Tools

### Production Tools

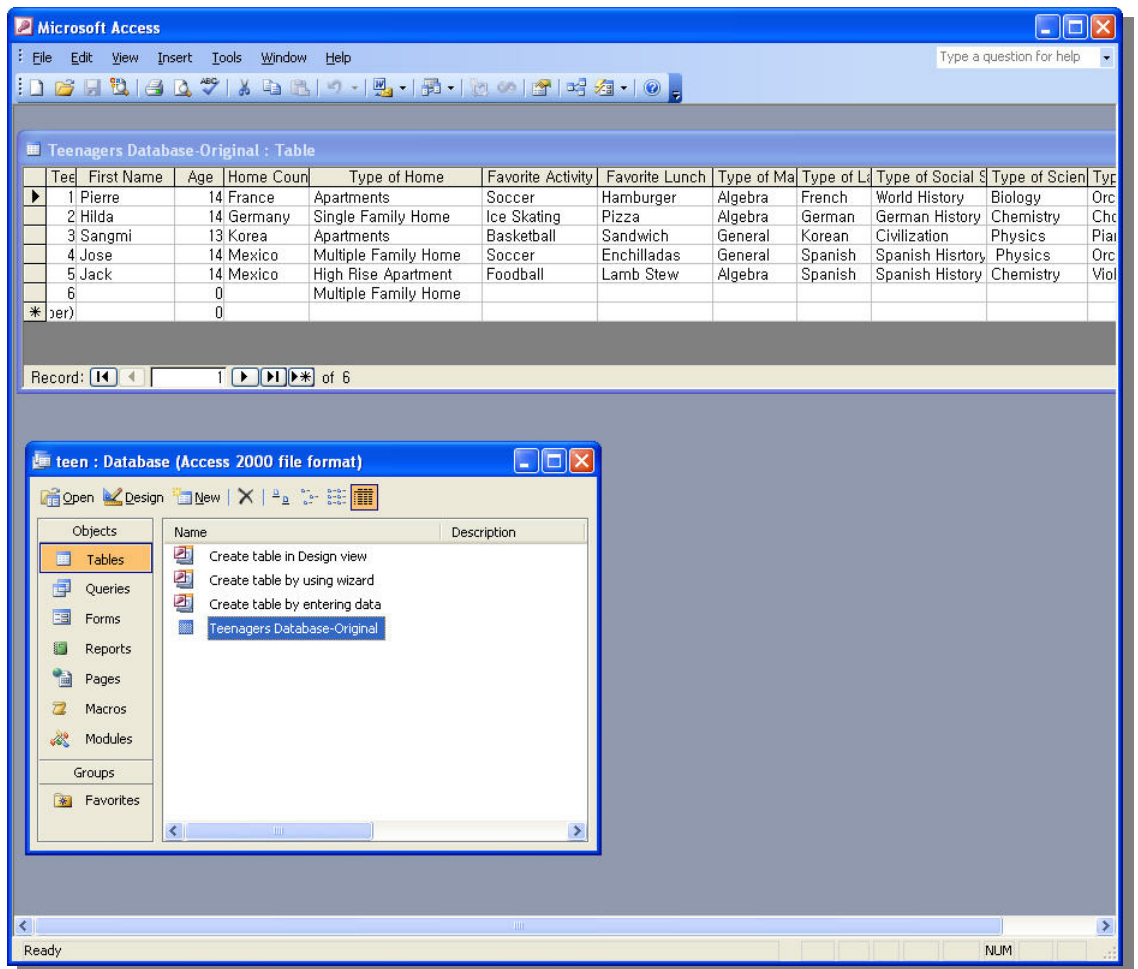
#### WORD PROCESSING

- Any type of activity that has students using a word processor to enter, format, or manipulate information
  - Enter = add text, graphics
  - Edit = spell check, cut and paste, rewrite sentences
  - Format = change font type or style, add tables, tabs, or borders
  - Manipulate = sort information, moving text
- Examples: MS Word, MS Works and AppleWorks word processing tool
- Non-example: Entering information in PowerPoint
- Word Processing Example (MS Word)



## DATABASE

- ➔ Any type of activity that has students using database software to create fields, enter, format, or manipulate information, and/or generate reports
  - Create Fields = name and format data fields
  - Enter = data into fields
  - Format = change font type/style or layout of data fields
  - Manipulate = sort information in data fields
  - Generate Reports = select and format report data
  
- ➔ Examples: MS Access, MS Works, AppleWorks
  
- ➔ Database Example (MS Access)



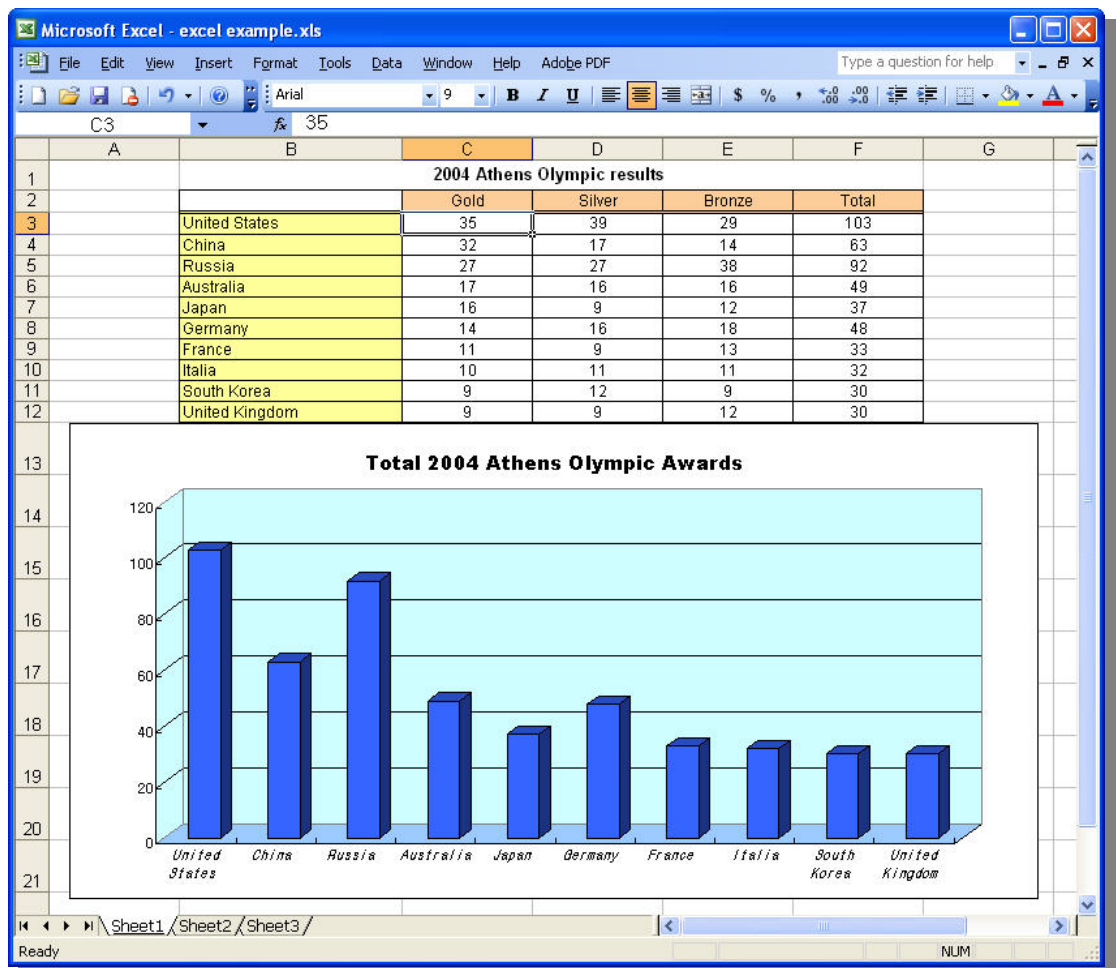
## SPREADSHEET

➤ Any type of activity that has students using spreadsheet software to enter, format, or manipulate information and/or generate charts.

- Enter = add row and column headers, cell data and formulas
- Format = change font type or style, number type, or chart details
- Manipulate = sort information, perform calculations
- Generate charts = highlight data and create charts

➤ Examples: MS Excel, MS Works, AppleWorks

➤ Spreadsheet Examples (Excel)

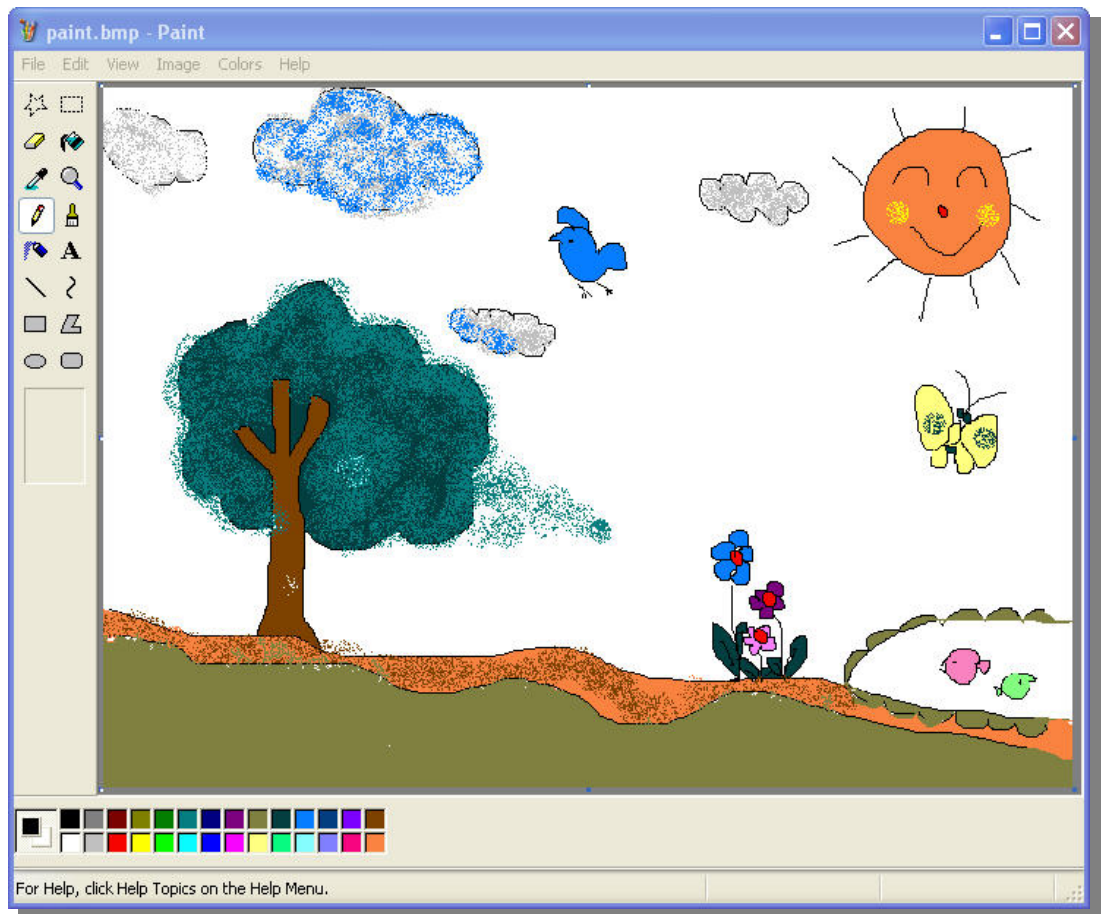




## DRAW/PAINT/GRAPHICS

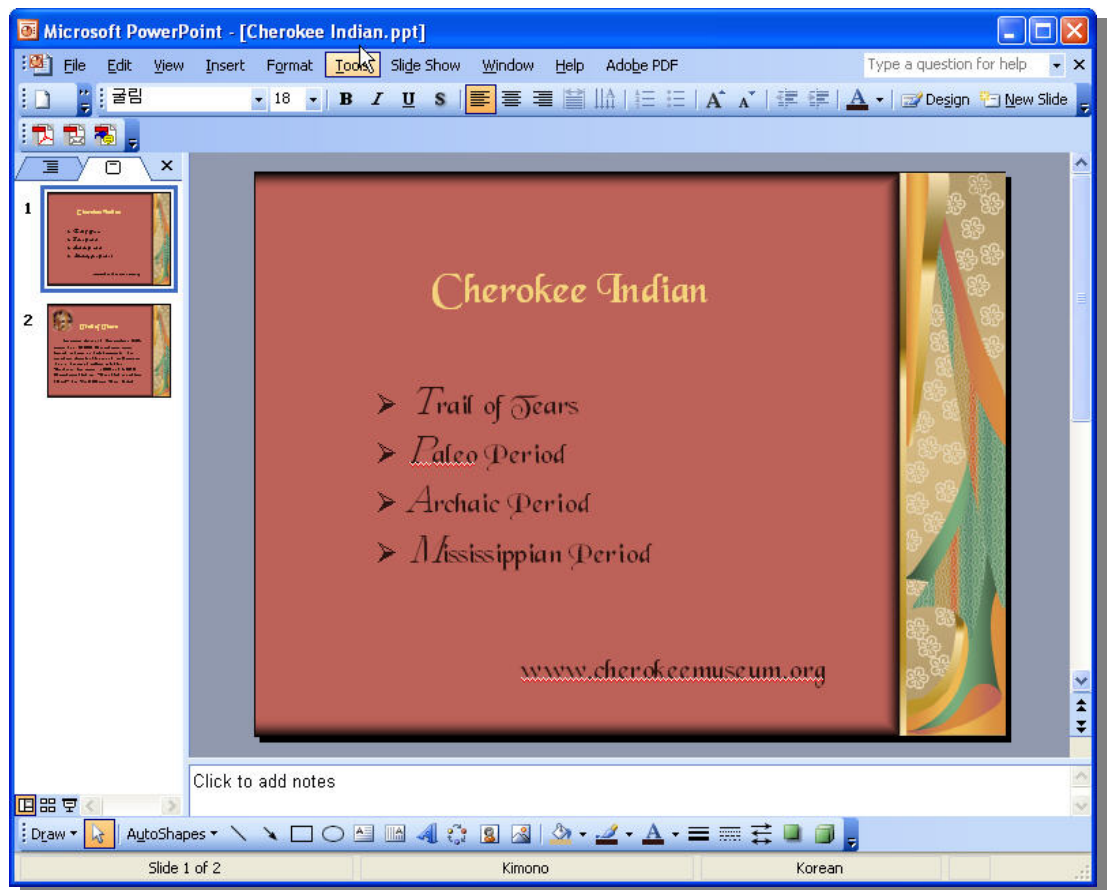
- Any type of activity that has students using draw, paint, or graphics software tools to draw and or compile digital images
  - Draw = use tools, such as pencil or paint brush, shapes and eraser to create images
  - Compile = add clip art/existing images to create original artwork
- Examples: Ms Office – draw tools, KidPix MS Works and AppleWorks Draw/Paint tools

- Drawing tool examples (Paint)



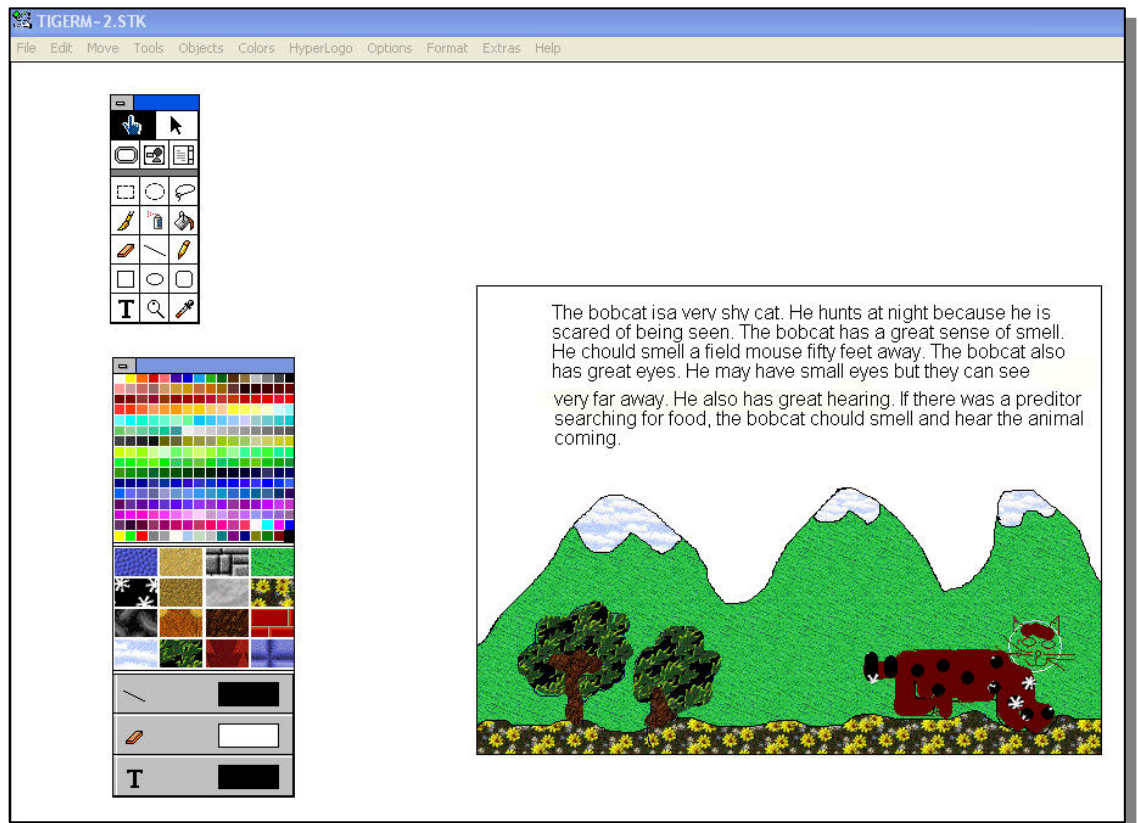
## PRESENTATION

- ➔ Any type of activity that has students using presentation software to enter, organize, format, and enhance information to be presented to others
  - Enter = add text, graphics
  - Organize = outline, set order of text, graphics, or slides
  - Format = change font, slide type or design
  - Enhance = add sound, video, transitions, animation
- ➔ Examples: MP Express, mPower, MS PowerPoint, MS Works, AppleWorks  
Presentation tools and Keynote
- ➔ Presentation Example (PowerPoint)



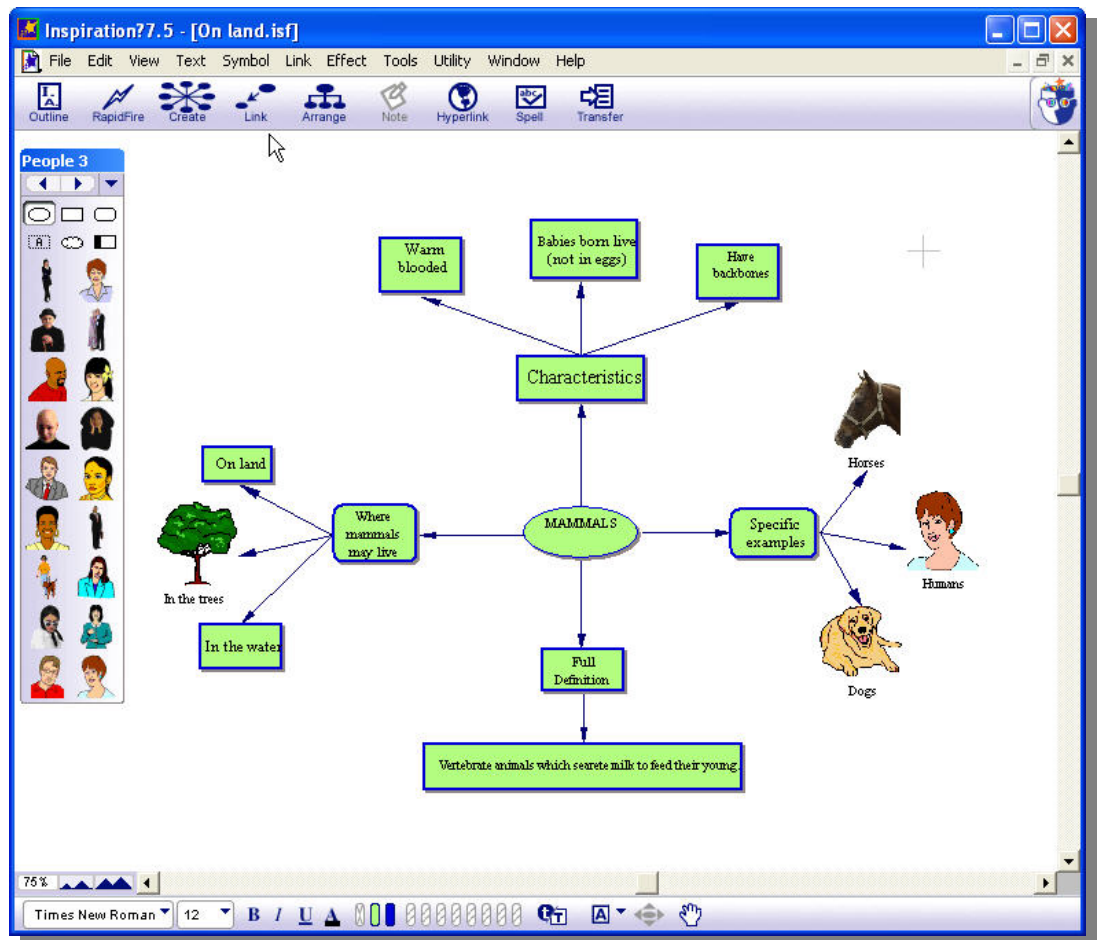
## AUTHORING

- Any type of activity that has students using authoring software to enter, organize, format, and program information
  - Enter = add text, graphics
  - Organize = set order of text, graphics, animations, or cards
  - Format = change font type or style, card design
  - Program = add sound, transitions, animation, functions and/or navigation
- Example: HyperStudio, PowerPoint or web page development (e.g., HTML, Dreamweaver, Flash, FrontPage)
- Authoring Examples (HyperStudio)



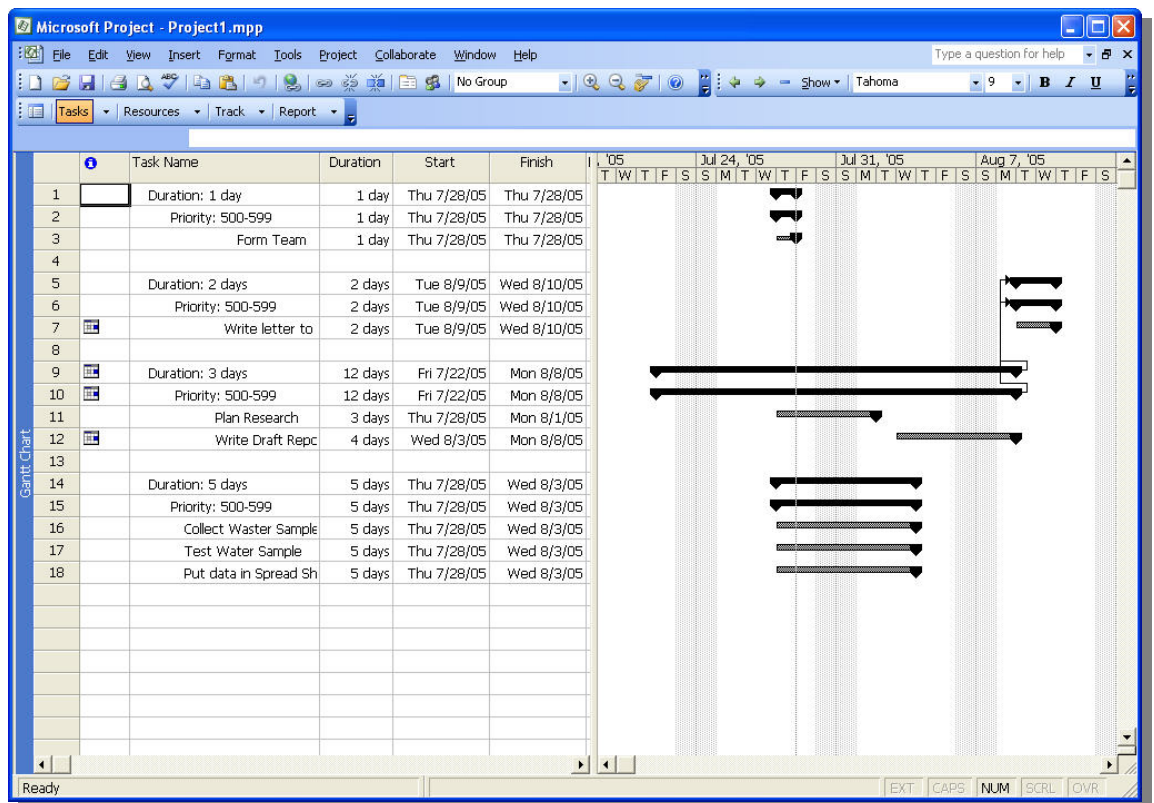
## CONCEPT MAPPING

- Any type of activity that has students using software that enables students to enter, edit, format and organize information into concept maps
  - Enter = add text, shapes and connector lines
  - Edit = spell check, cut and paste, rewrite
  - Format = change font, borders
  - Organize = arrange information into networked map
- Examples: MS Office, MS Works, AppleWorks, Inspiration
- Concept Mapping Example (Inspiration)



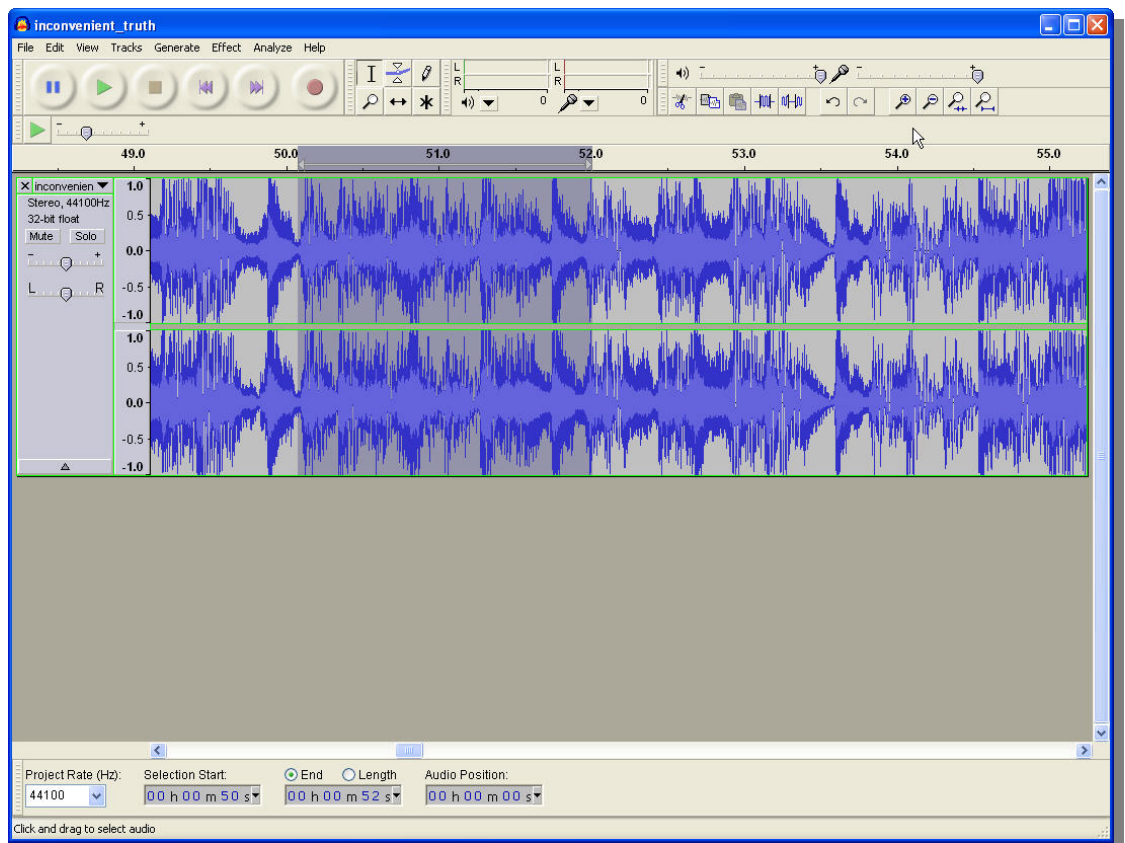
## PLANNING

- Any type of activity that has students using planning software to enter, edit, format, or organize information
  - Enter = add text or dates
  - Edit = spell check, cut and paste, rewrite
  - Format = change font, add organizing features
  - Organize = move information
- Examples: MS Project, MS Word, Excel, Works or AppleWorks
- Planning Example (MS Project)



## DIGITAL AUDIO

- Any type of activity that has students use software to record and/or manipulate (e.g., edit, enhance or transfer) audio files
  - Record = original sound or existing files
  - Edit = delete, modify or move portions of audio files
  - Enhance = clarify, add music, sound, effects
  - Transfer = move files
- Examples: Audacity, GarageBand, Mixcraft
- Digital Audio Example (Audacity)



## DIGITAL VIDEO

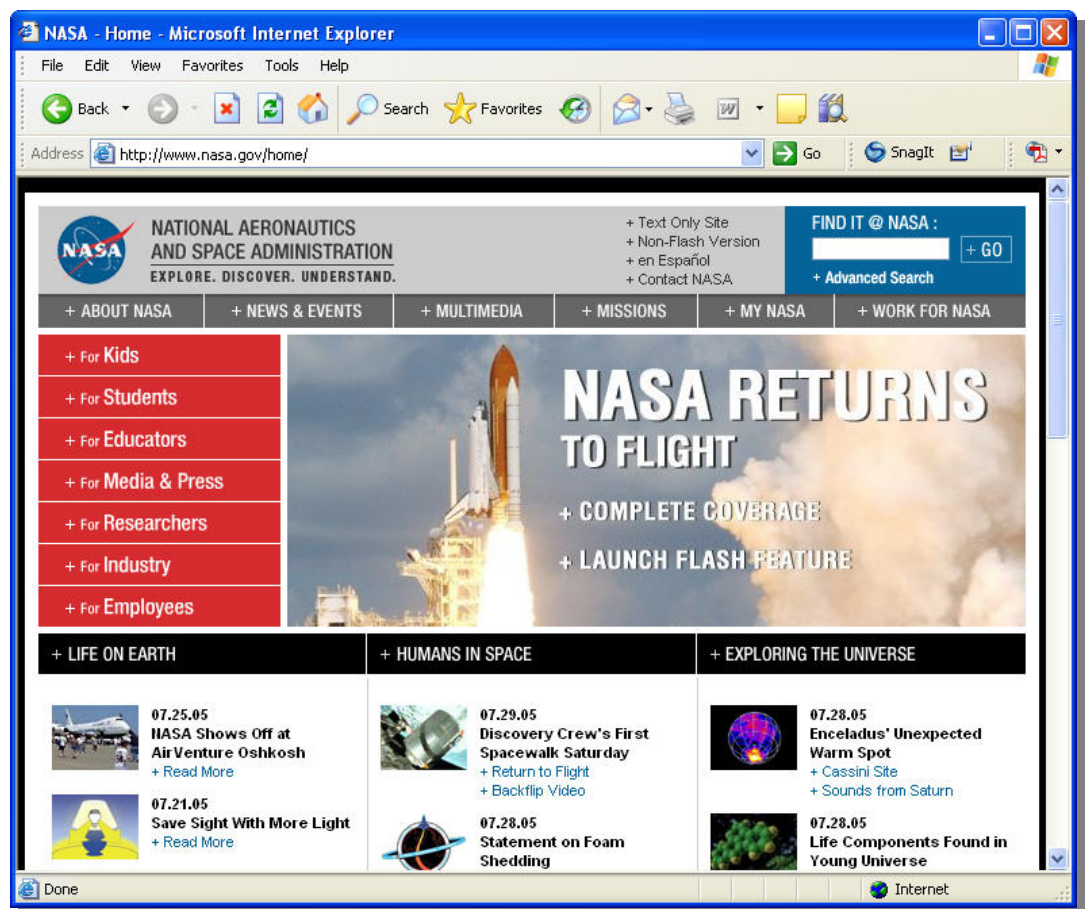
- Any type of activity that has students use software to record and/or manipulate (e.g., edit, enhance or transfer) video files
  - Record = original video or existing files
  - Edit = delete, modify or move portions of video files
  - Enhance = add narration, music, sounds, effects
  - Transfer = move files
- Examples: iMovie, Movie Maker
- Digital Video Example (iMovie)



## Internet/Research Tools

### INFORMATION SEARCH

- Any type of activity that has students using an Internet Browser to locate, bookmark, and/or retrieve information
  - Locate information = use existing search categories or search terms
  - Bookmark = create and/or organize bookmarked URLs
  - Retrieve information = download or copy information
  
- Examples: Netscape Navigator, MS Internet Explorer, Firefox, Safari
  
- Example (Internet Explorer)





## WEB POSTING

- ➔ Any type of activity that has students add digital files or information to a website, for example a podcast, wiki, or other files
  - Podcast = digital media files that are available through syndicated subscriptions with automatic downloads
  - Wiki = website which is collaboratively created and edited by anyone with access to it

### ➔ Examples

Listening to Podcast from iTunes

Publishing Podcast with Yahoo Podcasts

## INTERACTIVE LEARNING

Any type of activity that engages students in the use of online interactive tools, such as live cams, virtual manipulatives, or other tools the students can control.

Does NOT include online games or drill and practice activities

- Live cams = digital feeds that show “real-time” video from zoos, nature reserves, famous landmarks, etc
- Virtual maipulatives = sites allow students to move virtual components of digital environments, e.g., dissect a frog, change the speed of a racing car, or move math titles to solve problems

### Examples



The image shows two examples of interactive learning tools. The first is a screenshot of the Memphis Zoo website's panda cam page. It features a navigation bar with links like 'home', 'visit', 'animals', 'events', 'education', 'membership', 'conservation', 'support', 'about us', and 'contact'. Below the navigation is a header with two panda icons and the text 'Check out what the pandas are up to'. A central video player shows a panda lying down. To the right of the video are buttons for 'Become a MEMBER', 'Buy tickets ONLINE', 'Plan Your Visit', and 'Be a Volunteer'. A speech bubble points to the video player with the text 'Panda cam' and the URL 'http://www.memphiszoo.org/pandacam.aspx'. Below the video player is a link to 'Launch in external player' and a note 'Can't see our webcam? Click Here'. The second example is a screenshot of the FrogGuts website. It features a large frog in the center with a knife and a scalpel. The word 'OBSERVATIONS' is written vertically on the left. Below the frog, it says 'Make 3 incisions along the dotted red lines.' A speech bubble points to this interface with the text 'Frog dissection' and the URL 'http://www.froguts.com/fl\_ash\_content/index.html'.

Panda cam  
<http://www.memphiszoo.org/pandacam.aspx>

Frog dissection  
[http://www.froguts.com/fl\\_ash\\_content/index.html](http://www.froguts.com/fl_ash_content/index.html)

## CD REFERENCE

- Any type of activity that has students using CD-ROM reference materials to locate and/or retrieve information
  - Locate information = use existing search categories or search terms
  - Retrieve information = download or copy information
  
- Examples: Britannica, Compton's, Encarta, Crolier's, World Book encyclopedia, Time/Life Magazine Archive, National Geographic Maps, 3-D Atlas. Merriam-Webster's Dictionary



## SYNCHRONOUS COMMUNICATION

- Any type of activity that has students communicating with others at the same time, for example during chat or instant messaging sessions or a live video or audio conference
  - Chat/instant messaging sessions = primarily use text to share information and ideas
  - Video-conferencing = people can see and hear each other via live video
  - Audio-conferencing = people can hear each other via live audio
  
- Example (Online Video Conference)

Video conferencing in a classroom  
Retrieved from  
<http://www.oesd.wednet.edu/blog/index.php?q=node/6>

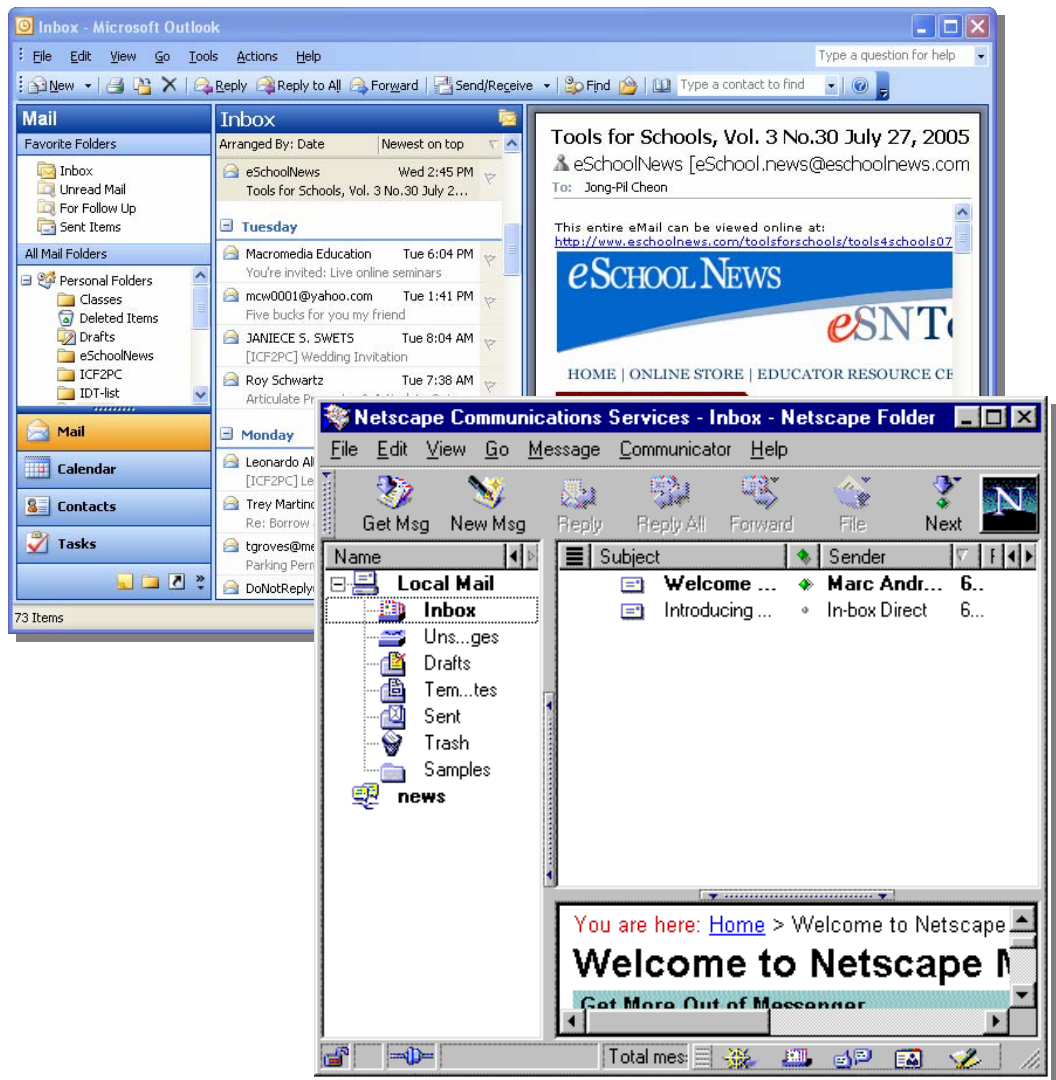


## ASYNCHRONOUS COMMUNICATION

Any type of activity that has students communicating with others at different times, for example using email, discussion boards, or lists

- Email = digital correspondence between two or more individuals
- Discussion/Bulletin boards = web-based location where individuals can post comments to discussion areas that are grouped or “threaded” by topic area
- Lists = information sent via email to a group of people who are subscribed to the list

### Example (Email)



## ■ Educational Software

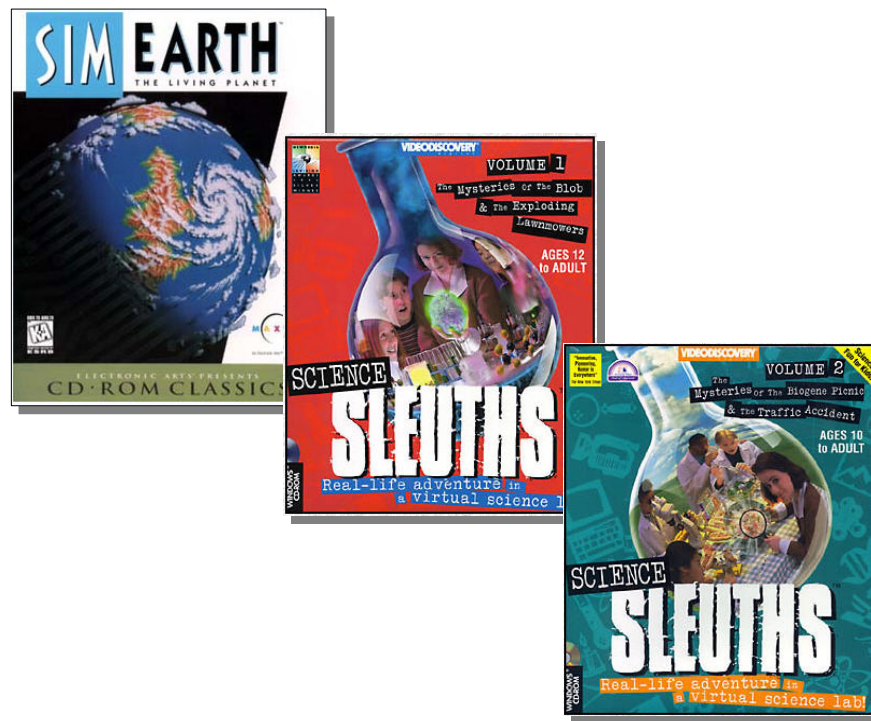
### ⌘ DRILL, PRACTICE & TUTORIAL

- Any type of activity that has students using educational software to review or learn new content or skills
  - Tutorials/Guided Practice – presents new information and provides interactive practice and feedback
  - Drill and Practice – provides interactive practice and feedback of previously presented information
  - Learning Games – provide drill-and-practice in a competitive and motivational nature. Competition can be provided with time constraints, points earned, and/or computer characters
  
- Examples: Most integrated learning systems for which students log on and complete prescribed lessons (e.g., Plato, CompassLearning, Waterford), Math Blaster, Smart Start: English



## ❏ PROBLEM-SOLVING

- Any type of activity that has students using educational software to solve problems in simulated environments
  - Problem-solving software presents students with situations that require the use of higher-order thinking skills to achieve the intended outcome(s). Many problem-solving programs involve simulations of “real-world” situations and often are game-like
- Examples: SimEarth, Science Sleuths, Oregon Trail



## ❏ PROCESS TOOLS

- Any type of activity that has students using educational software that provides them with a set of tools to assist them with completing a designated process such as writing a book report or graphing a set of data
- Examples: Geometer's Sketchpad, Author's Toolkit

## Testing Software

### INDIVIDUALIZED OR TRACKED TESTING

- Students log in to take tests
- Students performance is recorded and stored
- Performance Reports can be generated
- Example: Accelerated Reader

The top screenshot shows the 'Accelerated Reader' interface. It features a navigation menu with 'Overview', 'Quizzes', 'STAR Reading', 'Professional Development', 'FREE Information', and 'Funding'. The main banner reads 'Now You CAN Accelerate Reading Growth!' and includes a bar chart comparing 'Gain Score' for '15 Minutes Without Ask Per Day' (2.89) and '15 Minutes With Ask Per Day' (5.66). The bottom section has a 'Service and Support Center' with links for 'Order Quizzes', 'Suggest Titles', 'Contact Your Coach', 'Technical Support', and 'Renaissance Store'.

The bottom screenshot shows the 'Math Renaissance' interface. It features a navigation menu with 'Overview', 'Coach', 'Accelerated Math', 'STAR Math', 'FREE Information', and 'Funding'. The main banner reads 'Now Help All Your Students Succeed at Math!' and includes a bar chart titled 'Math Renaissance Students Outperform Peers' showing 'Percentage of Students' across 'Grade' levels. The bottom section has a 'Service and Support Center' with links for 'Contact Your Coach', 'Technical Support', and 'Renaissance Store'. A quote from Ed Farrell, a teacher, is also present: '...with Math Renaissance, it's possible for me to have every student working at the appropriate level and at their own pace.'

### GENERIC TESTING SOFTWARE

- Student records are not maintained
- Student performance results can typically be printed





## Checking Subject Areas

- ☐ Check subject area(s) involved with each activity.
- ☐ Check none if it was a “free time” activity without an academic focus
- ☐ If an activity is related to more than two subject areas, check all subject areas.
- ☐ Examples

### 📌 Production Tools

If a student begins by wiring a friendly letter, and then switches to a HyperStudio stack on the planets, mark both language arts and science.

### 📌 Internet or a Research Tool

These activities are often interdisciplinary, so more than one area may be marked

### 📌 Educational Software

Most drill and practice software is subject-specific. Some of the problem-solving software may involve more than one subject area

### 📌 Test Software

Most testing software is also subject-specific. Very few, if any, will involve more than one subject area

### ☐ Scale

- Language arts
- Mathematics
- Science
- Social Studies
- Other – select if content area is other than those listed, e.g., art, foreign language
- None – select if no subject area is observed, for example if a student is playing a game that is not related to any content area

## Meaningfulness of the Activities

### ■ Meaningfulness

- Individually rate the meaningfulness of each computer activity that was observed. For example, three ratings would be given for an observation if students were engaged in three computer activities, e.g., 1) Internet search, 2) creation of a PowerPoint presentation, and 3) practicing basic math skills with a computer game
- Base the meaningfulness rating on the types of student activities that are planned for the overall assignment NOT on how well individual students participate or complete the assignment
- The goal is to identify the types of computer activities that are planned by teachers according to the level of meaningfulness. The “Meaningfulness” scale is based on ISTE’s National Technology Standards for Students (2007)

### ■ Rating scale

- **LOW LEVEL USE OF COMPUTERS:**

Activities in general required no critical thinking, e.g., used computer applications for copying text or free-time drawing, or used educational software for drill & practice, tutorials, or games.

- **SOMEWHAT MEANINGFUL USE OF COMPUTERS:**

Activities in general required very little problem-solving or critical thinking and used computer applications or educational software in a limited manner.

- **MEANINGFUL USE OF COMPUTERS:**

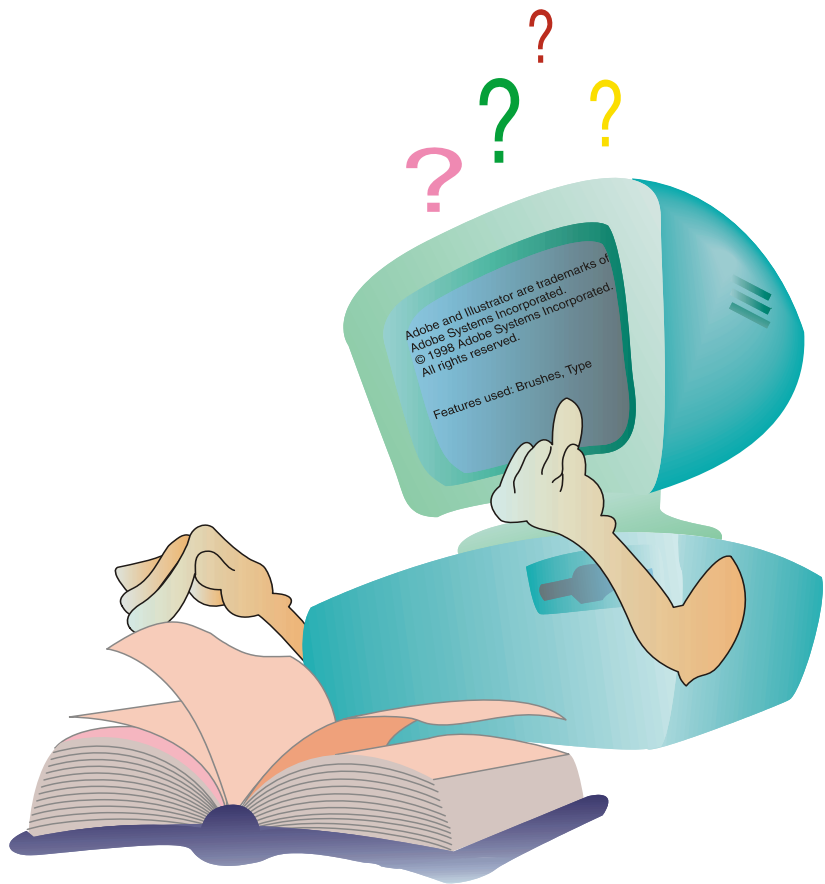
Activities were problem-based, required some critical thinking skills, and some use of computer applications to locate and/or process information or some manipulation of educational software variables to reach solutions.

- **VERY MEANINGFUL USE OF COMPUTERS:**

Activities were based on meaningful problems, required critical thinking skills, and appropriate use of computer applications to locate and/or process information or manipulation of educational software variables to reach solutions.

**Observation Notes**

- Provide a brief description of the lesson and what the students were doing while at the computers
- This description should emphasize the content and educational meaningfulness of the computer activities rather than specific technology-related skills.



## 7

# Submitting OCU Instruments

## Paper-based Submission of OCU Instruments

*OCU* observers will be provided with sufficient materials for conducting the required number of observations and returning the completed instruments in postage-paid envelopes or submitting the data by entering it into the online system. Specific details for submitting Multi-class and Targeted paper-based forms are below. Separate guidelines are provided for submitting data via the online system. In addition, observers will receive an observer's packet tailored to their assigned research study.

MULTI-CLASS	TARGETED
<p>Complete the following steps for <i>each</i> multi-class <i>OCU</i>:</p> <ul style="list-style-type: none"> <li>• Group all <i>Observation of Computer Use: Data Collection Forms</i> (10-12) for the three-hour observation.</li> <li>• Ensure that all forms have the date, times of observation, and <i>OCU</i> number, if multiple <i>OCUs</i> are conducted.</li> <li>• Staple or clip the 10 to 12 <i>OCU Data Collection Forms</i> together.</li> <li>• Ensure that the <i>OCU Multi-class Data Summary Form</i> is accurate and complete.</li> <li>• Make sure all strategies have been scored (bubbled in), even if they are "Not Observed."</li> <li>• Place the <i>OCU Data Collection Forms</i> with its completed <i>OCU Multi-class Data Summary Form</i> in the provided envelope - do NOT staple the <i>Summary Form</i>.</li> </ul> <p>Repeat the above for any remaining multi-class <i>OCUs</i></p>	<p>Complete the following steps to prepare the materials for submitting <i>each</i> targeted <i>OCU</i>:</p> <ul style="list-style-type: none"> <li>• Group all <i>Observation of Computer Use: Data Collection Form</i> (3-6) for the observed lesson.</li> <li>• Ensure that all forms have the date, times of observation, and <i>OCU</i> number, if multiple <i>OCUs</i> are conducted.</li> <li>• Staple or clip the 4 to 6 <i>OCU Data Collection Forms</i> together.</li> <li>• Ensure that the <i>OCU Targeted Data Summary Form</i> is accurate and complete.</li> <li>• Make sure all strategies have been scored (bubbled in), even if they are "Not Observed."</li> <li>• Place the <i>OCU Data Collection Forms</i> with its completed <i>OCU Targeted Data Summary Form</i> in the provided envelope - do NOT staple the <i>Summary Form</i>.</li> </ul> <p>Repeat this for any remaining targeted <i>OCUs</i></p>

## ONLINE Submission of OCU Instrument

Some evaluations will have observers submit OCU results via CREP's online Survey Management System (SMS). In most cases, you will still be asked to submit the paper copies of your *OCU Data Collection Forms* and *OCU Data Summary forms* as archival documents. Step-by-step guidelines and associated screen shots for entering your OCU data into SMS and for viewing reports are provided below.

1. Log onto <http://crep.memphis.edu/survey> using your case sensitive User ID and Password.



Sample User ID: TrainingObserver

Sample Password: creptrain

(Each observer will be issued a unique User ID and Password)

CREP Web Page - Microsoft Internet Explorer

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**CREP Survey System**

**Please log in:**

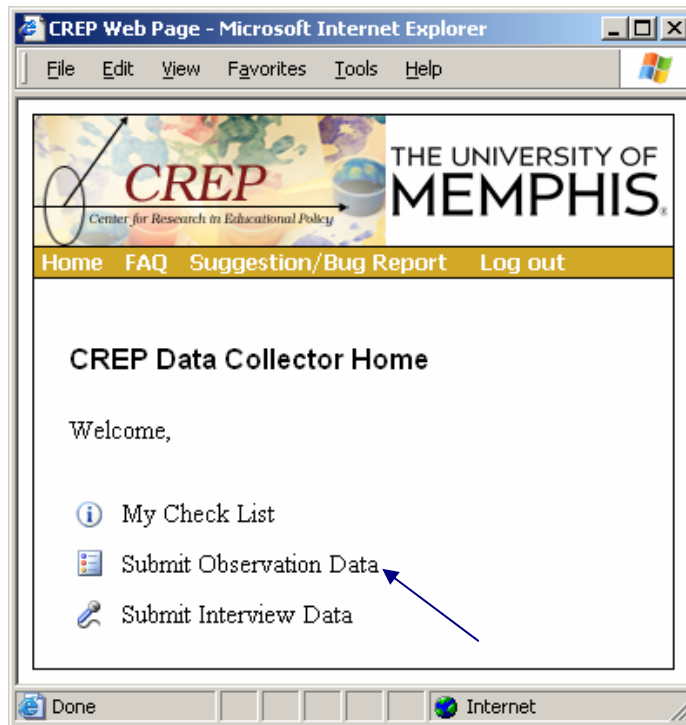
User ID:

Password:

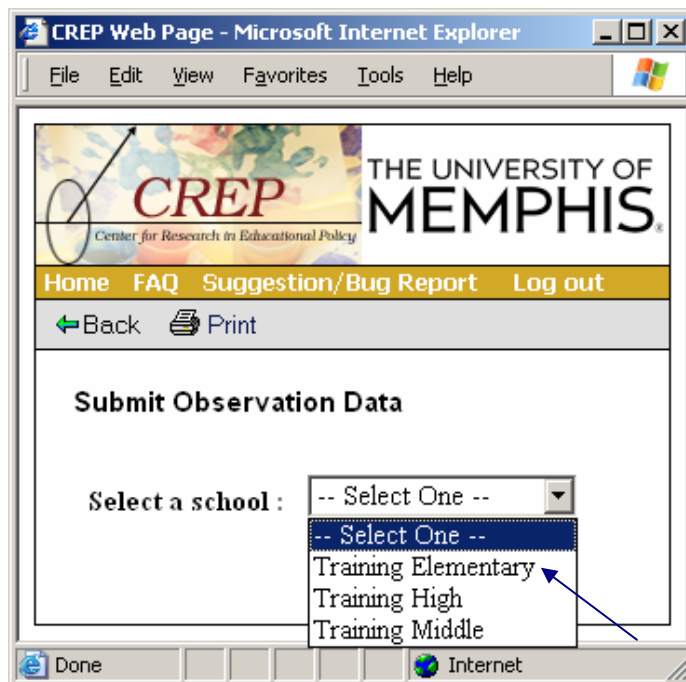
[Forget your password?](#)

Done Internet

2. Click on the Submit Observation Data link:



3. Choose your school from the drop-down menu:



4. Select the observation to be entered:

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**Submit Observation Data**

Select a school : Training Elementary

	Instrument	Version	Year	Observation Name
Select	LOT	Reading First	2007 - 2008	Training LOT 07-08
Select	OCU	Multi-Class	2007 - 2008	Training OCU 07-08
Select	RSCA	Whole School/Multi-Class	2007 - 2008	Training RSCA 07-08
Select	SOM	Whole School/Multi-Class	2007 - 2008	Training SOM 07-08

Done Internet

5. Click on the calendar to fill out the Date of Observation

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**Observation of Computer Use**

School Name: Training Elementary Observer Name:

City: Training Observation Date: (MMM dd, yyyy)

State: TN

Today's Date: Sep 05, 2007

**Number of observations comprising this OCU**

1. How many 15-minute segments (observation notes forms) comprised this multi-class OCU? (typical range is 8 - 12)

Number of segments:

**Computer Configuration**

1. Classrooms most frequently had the following number of computers/laptops available for student use:

None

One

2-4

Done Internet

6. Using your cursor click to select a response for each item. Scroll down to fill out the entire observation including entering text directly into the text boxes.

**FREQUENCY AND TYPE OF COMPUTER ACTIVITY**

Indicate how frequently students were engaged in the following types of computer activities

Production Tools Used by Students	Not Observed	Rarely	Occasionally	Frequently	Extensively
1. Word Processing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
2. Database	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Spreadsheet	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Draw/Paint/Graphics/Photo-imaging	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Presentation (e.g., MS PowerPoint)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
6. Authoring (e.g., HyperStudio)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Concept Mapping (e.g., Inspiration)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
8. Planning (e.g., MS Project)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
9. Digital Audio (e.g., Audacity, GarageBand, Mixcraft)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Digital Video (e.g., iMovie, Movie Maker)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Other (please describe)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Describe Other Production Tools (Note: Your responses will be listed verbatim in the report.)

1. Please describe other production tools

7. Once you have completed the observation, click the Preview button located at the end or on the toolbar:

**Meaningful Use of Computers**

Indicate how frequently students were engaged in the following types of computer activities

Meaningful Use of Computers	Not Observed	Rarely	Occasionally	Frequently	Extensively
1. Not meaningful use of computers: Activities were based on simple, rote tasks, such as practice, tutorials, or games.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Somewhat meaningful use of computers: Activities in general required very little problem-solving or critical thinking and used computer applications or educational software in a limited manner.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Meaningful use of computers: Activities were problem-based, required some critical thinking skills, and some use of computer applications to locate and/or process information or some manipulation of educational software variables to reach solutions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Very meaningful use of computers: Activities were based on meaningful problems, required critical thinking skills, and appropriate use of computer applications to locate and/or process information or manipulation of educational software variables to reach solutions.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Back Preview Print Spell Check

Note: Click on the Preview button to confirm your responses. Then you can submit the responses.



8. Check the Preview to determine if all responses were entered correctly. If you wish to change any responses simply click on the Back button located on the toolbar and change the incorrect selection. Then return to step 7.

http://64.34.174.9 - CREP Web Page - Windows Internet Explorer provided by C.RE.P

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Back Submit Print

Indicate how frequently students were engaged in the following types of computer activities

Production Tools Used by Students	Not Observed	Rarely	Occasionally	Frequently	Extensively
1. Word Processing				Selected	
2. Database			Selected		
3. Spreadsheet		Selected			
4. Draw/Paint/Graphics/Photo-imaging			Selected		
5. Presentation (e.g., MS PowerPoint)					Selected
6. Authoring (e.g., HyperStudio)		Selected			
7. Concept Mapping (e.g., Inspiration)					Selected
8. Planning (e.g., MS Project)				Selected	
9. Digital Audio (e.g., Audacity, GarageBand, Mixcraft)	Selected				
10. Digital Video (e.g., iMovie, Movie Maker)			Selected		
11. Other (please describe)	Selected				

Describe Other Production Tools (Note: Your responses will be listed verbatim in the report.)

1. Please describe other production tools

Subject Areas

1. Indicate all subject areas involved with the use of Production Tools:

Language Arts Mathematics Science Social Studies (Selected) Other None

Internet/Research Tools Used by Students

Not Rarely Occasionally Frequently Extensively

9. Once you have determined that all responses were correctly selected, choose to Submit your observation.

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Back Submit Print

Indicate how frequently students were engaged in the following types of computer activities

Production Tools Used by Students	Not Observed	Rarely	Occasionally	Frequently	Extensively
1. Word Processing				Selected	
2. Database			Selected		
3. Spreadsheet		Selected			
4. Draw/Paint/Graphics/Photo-imaging			Selected		
5. Presentation (e.g., MS PowerPoint)					Selected
6. Authoring (e.g., HyperStudio)		Selected			
7. Concept Mapping (e.g., Inspiration)					Selected
8. Planning (e.g., MS Project)				Selected	
9. Digital Audio (e.g., Audacity, GarageBand, Mixcraft)	Selected				
10. Digital Video (e.g., iMovie, Movie Maker)			Selected		
11. Other (please describe)	Selected				

Describe Other Production Tools (Note: Your responses will be listed verbatim in the report.)

1. Please describe other production tools

Subject Areas

1. Indicate all subject areas involved with the use of Production Tools:

Language Arts Mathematics Science Social Studies (Selected) Other None

Internet/Research Tools Used by Students

Not Rarely Occasionally Frequently Extensively

10. When you submit your observation you will receive a confirmation number.  
Please write down this confirmation number for verification.

## References for scientific and psychometric validation

### ■ A study of reliability using Generalizability Theory

Sterbinsky, A., Ross, S. M. & Burke, D. (2004). Tennessee EdTech Accountability Model (TEAM) Reliability Study. The CNA Corporation, Alexandria, VA.

### ■ A synthesis of applied uses of OCU and review of norms for strategies derived from aggregate data

Lowther, D. L., Ross, S. M., & Strahl, J. D. (2006). The Influence of Technology Integration on Instructional Practices. *International Journal of Knowledge, Culture and Change Management*, 6(5), 131-141.

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McDonald, A.J., Sterbinsky, A., Lowther, D., Ross, S.M., Redfield, D., Apodaca, M., & Martelli, S. (2004). Demonstrating comprehensive school reform: A review of two longitudinal studies. *The International Journal of Educational Policy, Research and Practice*, 4(4), 93-110.

Lowther, D. L., Ross, S. M., & Morrison, G. R. (2003). When each one has one: The influences on teaching strategies and student achievement of using laptops in the classroom. *Educational Technology Research and Development*, 51(03), 23-44.

Ross, S. M. & Lowther, D. L. (2003). Impacts of the Co-nect school reform design on classroom instruction, school climate, and student achievement in inner-city schools. *Journal for Educational Research on Students Placed At Risk*, 8(3), 215-246.

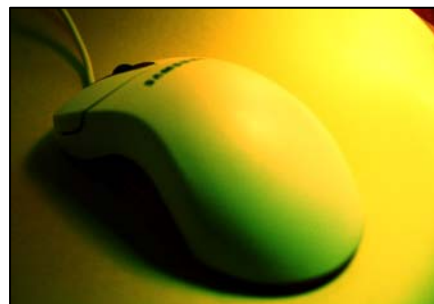
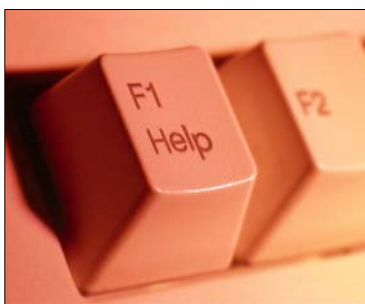
Ross, S., Troutman, A., Horgan, D., Maxwell, S., Laitinen, R., & Lowther, D. (1997). The success of schools in implementing eight restructuring designs: A synthesis of first-year evaluation outcomes. *School Effectiveness and School Improvement* 8 (1) 95-124.

Smith, L., Ross, S., McNelis, M., Squires, M., Wasson, R., Maxwell, S., Weddle, K., Nath, L., Grehan, A., & Buggey, T. (1998). The Memphis restructuring initiative: Analyses of activities and outcomes that impact implementation success. *Education and Urban Society*, 30(3), 296-325.

- Smith, L., Maxwell, S., Lowther, D., Hacker, D., Bol, L., & Nunnery, J. (1997). Activities in schools and programs experiencing the most, and least, early implementation success. *School Effectiveness and School Improvement*, 8 (1), 125-150.
- Sterbinsky, A., Ross, S. M., & Redfield, D. (in press). Effects of comprehensive school reform on student achievement and school change: A longitudinal multi-site study. *School Effectiveness and School Improvement*.

# Appendix A

## OCU DATA COLLECTION FORM



# OBSERVATION OF COMPUTER USE: DATA COLLECTION FORM

School \_\_\_\_\_ Observer Name \_\_\_\_\_ Time In \_\_\_\_\_ Time Out \_\_\_\_\_

Grade \_\_\_\_\_ ID# \_\_\_\_\_ Observation Date \_\_\_\_\_ OCU # \_\_\_\_\_ of \_\_\_\_\_ Target YES \_\_\_\_\_ NO \_\_\_\_\_

Subject/ Activity Overview \_\_\_\_\_

**Directions:**

Use one sheet for each 15 minutes of observation. Use a pencil to record information. Only mark one response per item, unless noted otherwise.

**Computer Configuration**

1. How many computers/laptops were **available for student use**:  
 None – if none, skip to Question 4.  
 Only one  
 2-4  
 5-10  
 11 or more
  2. **Most** of the computers/laptops (not digital tools) were:  
 Up-to-date  
 Aging but adequate  
 Outdated/limited capacity  
 No computers were available
  3. **Most** of the computers/laptops (not digital tools) were:  
 Connected to the Internet  
 Not connected to the Internet  
 No computers were available
  4. Did **students** use computers or digital tools during the observation?  
 Yes  
 No
- If No, STOP here. If Yes, please continue with Question 5.

**Computer Use**

5. During this 15 minute observation, classroom computers/digital tools were used by:  
 only a few (less than 10%) students  
 some (about 10-50%) students  
 most (about 51-90%) students  
 nearly all (91-100%) students
6. **TALLY** the number of times students worked at computers or with digital tools:  
 # alone  
 # in pairs  
 # in small groups
7. **TALLY** the number of students whose computer literacy skills were:  
 # Poor  
 # Moderate  
 # Very good  
 Not observed
8. **TALLY** the number of students whose keyboarding skills were:  
 # Poor  
 # Moderate  
 # Very good  
 Not observed

**Computers/Digital Tools**

9. Check ALL types of computers and/or digital tools that were **USED during this observation**:  
 Desktop computers  
 Laptop computers  
 Portable Digital Devices (e.g., PDA, iPod)  
 Graphing Calculator  
 Information Processor (e.g., AlphaSmart)  
 Digital Accessories (e.g., cameras, scanners, probes)

**Observation Notes:** Provide a brief description of the lesson and what the students were doing while at the computers. This description should emphasize the content and educational meaningfulness of the computer activities rather than specific technology-related skills.

COMPUTER TOOLS USED BY STUDENTS	Number of Activities Tally # of different activities per tool.	Tally # of Students who used the tool	Meaningfulness of Computer activities				Subject Area(s) of the activities								
			1 Low level use of computers	2 Somewhat meaningful use	3 Meaningful use	4 Very meaningful use of computers	Language Arts	Mathematics	Science	Social Studies	Other	None			
<i>Example: Presentation</i>	III	7/11/11	I	II					X						
<b>PRODUCTION TOOLS</b>															
Word Processing															
Database															
Spreadsheet															
Draw/Paint/Graphics															
Presentation (e.g., MS PowerPoint™)															
Authoring (e.g., HyperStudio™)															
Concept Mapping (e.g., Inspiration™)															
Planning (e.g., MS Project™)															
Digital Audio (e.g., Audacity™)															
Digital Video (e.g., iMovie™)															
Other (please describe)															
<b>INTERNET/RESEARCH TOOLS</b>															
Information Search (e.g., Netscape™)															
Web Posting (e.g., Wiki, podcast™)															
Interactive Learning (e.g., virtual manipulatives)															
CD Reference (e.g., encyclopedias)															
Synchronous Communication (e.g., chat, video/audio conference)															
Asynchronous Communication (e.g., email, discussion boards)															
Other (please describe)															
<b>EDUCATIONAL SOFTWARE</b>															
Drill/Practice/Tutorial															
Problem Solving (e.g., Oregon Trail™)															
Process Tools (e.g., Geometer's Sketchpad™)															
Other (please describe)															
<b>TESTING SOFTWARE</b>															
Individualized/Tracked (e.g., Accelerated Reader)															
Generic															
Other (please describe)															

**\*RUBRIC for Meaningful Use of Computers**

Low level use of computers: activities in general required no critical thinking, e.g., used computer applications for copying text or free-time drawing, or used educational software for drill & practice, tutorials, or games.	Meaningful use of computers: activities were problem-based, required some critical thinking skills, and some use of computer applications to locate and/or process information or some manipulation of educational software variables to reach solutions
Somewhat meaningful use of computers: activities in general required very little problem-solving or critical thinking and used computer applications or educational software in a limited manner.	Very meaningful use of computers: activities were based on meaningful problems, required critical thinking skills, and appropriate use of computer applications to locate and/or process information or manipulation of educational software variables to reach solutions.

# Appendix B

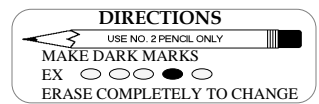
## OCU DATA SUMMARY FORM

- MULTI-CLASS
- TARGETED





# Observation of Computer Use (OCU)<sup>®</sup> Multi-Class Data Summary Form



School \_\_\_\_\_ Observer Name \_\_\_\_\_ Observer Affiliation \_\_\_\_\_

Observation Date \_\_\_\_\_ OCU # \_\_\_\_\_ of \_\_\_\_\_ Number of 15-minute segments in this observation \_\_\_\_\_

*Directions: Use information from your OCU Data Collection Forms to complete the following sections. Only mark one response per item, unless noted otherwise.*

COMPUTER CONFIGURATION	COMPUTER USE
------------------------	--------------

1. Classrooms most frequently had the following number of computers/laptops available for student use:

- None
- One
- 2 - 4
- 5 - 10
- 11 or more

2. Classroom computers were most frequently:

- Up-to-date
- Aging but adequate
- Outdated/limited capacity
- No computers were observed

3. Classroom computers were most frequently:

- Connected to the Internet
- Not connected to the Internet
- No computers were observed

4a. Total number of classrooms visited:

- 0 0
- 1 1
- 2 2
- 3 3
- 4 4
- 5 5
- 6 6
- 7 7
- 8 8
- 9 9

4b. Total number of classrooms without students using computers:

- 0 0
- 1 1
- 2 2
- 3 3
- 4 4
- 5 5
- 6 6
- 7 7
- 8 8
- 9 9

5. Classroom computers or digital tools were most frequently used by:

- Few (less than 10%) students
- Some (about 10-50%) students
- Most (about 51-90%) students
- Nearly all (91-100%) students
- Students did not use computers

6. Students most frequently worked with computers or digital tools:

- Alone
- In pairs
- In small groups
- Students did not use computers

7. Student computer literacy skills were most frequently:

- Poor
- Moderate
- Very good
- Not observed

8. Student keyboarding skills were most frequently:

- Poor
- Moderate
- Very good
- Not observed

### Multi-Class Frequency Rating

- |                  |  |
|------------------|--|
| (0) Not Observed | -- Strategy was never observed   |
| (1) Rarely       | -- Observed in only one or two classes<br>-- Receives isolated use and/or little time in classes<br>-- Clearly not a prevalent and/or emphasized component of teaching and learning across classes |
| (2) Occasionally | -- Observed in some classes<br>-- Receives minimal or modest time or emphasis in classes<br>-- Not a prevalent and/or emphasized component of teaching and learning across classes                 |
| (3) Frequently   | -- Observed in many but not all classes<br>-- Receives substantive time or emphasis in classes<br>-- A prevalent component of teaching and learning across classes                                 |
| (4) Extensively  | -- Observed in most or all classes<br>-- Receives substantive time and/or emphasis in classes<br>-- A highly prevalent component of teaching and learning across classes                           |

# Observation of Computer Use: Multi-Class Data Summary Form

## COMPUTERS/DIGITAL TOOLS

9. Indicate how frequently students used the following computers and/or digital tools

	Not Observed	Rarely	Occasionally	Frequently	Extensively
Desktop Computers	0	1	2	3	4
Laptop Computers	0	1	2	3	4
Portable Digital Devices (e.g., PDA, iPod)	0	1	2	3	4
Graphing Calculator	0	1	2	3	4
Information Processor (e.g., Alphaboard)	0	1	2	3	4
Digital Accessories (e.g., camera, scanner, probes)	0	1	2	3	4

## FREQUENCY AND TYPE OF COMPUTER ACTIVITY

10. Indicate how frequently students were engaged in the following types of computer activities.

### Production Tools Used by Students

	Not Observed	Rarely	Occasionally	Frequently	Extensively
Word Processing	0	1	2	3	4
Database	0	1	2	3	4
Spreadsheet	0	1	2	3	4
Draw/Paint/Graphics/Photo-imaging	0	1	2	3	4
Presentation (e.g., MS PowerPoint)	0	1	2	3	4
Authoring (e.g., HyperStudio)	0	1	2	3	4
Concept Mapping (e.g., Inspiration)	0	1	2	3	4
Planning (e.g., MS Project)	0	1	2	3	4
Digital Audio (e.g., Audacity, GarageBand, Mixcraft)	0	1	2	3	4
Digital Video (e.g., iMovie, Movie Maker)	0	1	2	3	4
Other (please describe) _____	0	1	2	3	4

**Indicate all subject areas involved with the use of Production Tools:**

- Language Arts   
  Mathematics   
  Science   
  Social Studies   
  Other   
  None

### Internet/Research Tools Used by Students

Information Search (e.g., Netscape Navigator, MS Internet Explorer)	0	1	2	3	4
Web Posting (e.g., Wiki, Podcast)	0	1	2	3	4
Interactive Learning (e.g., live cams, virtual manipulatives)	0	1	2	3	4
CD Reference (encyclopedias, etc.)	0	1	2	3	4
Synchronous Communication (e.g., chats, video/audio conferencing)	0	1	2	3	4
Asynchronous Communication (e.g., email, discussion boards, lists)	0	1	2	3	4
Other (please describe) _____	0	1	2	3	4

**Indicate all subject areas involved with the use of Internet/Research Tools:**

- Language Arts   
  Mathematics   
  Science   
  Social Studies   
  Other   
  None

### Educational Software Used by Students

Drill/Practice/Tutorial	0	1	2	3	4
Problem Solving (Oregon Trail, SimCity, etc.)	0	1	2	3	4
Process Tools (Geometer's Sketchpad, etc.)	0	1	2	3	4
Other (please describe) _____	0	1	2	3	4

**Indicate all subject areas involved with the use of Educational Software:**

- Language Arts   
  Mathematics   
  Science   
  Social Studies   
  Other   
  None

### Testing Software

Individualized/Tracked (e.g., Accelerated Reader)	0	1	2	3	4
Generic	0	1	2	3	4
Other (please describe) _____	0	1	2	3	4

**Indicate all subject areas involved with the use of Testing Software:**

- Language Arts   
  Mathematics   
  Science   
  Social Studies   
  Other   
  None

# Observation of Computer Use: Multi-Class Data Summary Form

## Overall Meaningful Use of Computers

*Directions: Indicate how frequently the following levels of computer activity were observed.*

Not Observed	Rarely	Occasionally	Frequently	Extensively
--------------	--------	--------------	------------	-------------

**Low level use of computers:**

Activities in general required no critical thinking, e.g., used computer applications for copying text or free-time drawing, or used educational software for drill & practice, tutorials, or games.

0	1	2	3	4
---	---	---	---	---

**Somewhat meaningful use of computers:**

Activities in general required very little problem-solving or critical thinking and used computer applications or educational software in a limited manner.

0	1	2	3	4
---	---	---	---	---

**Meaningful use of computers:**

Activities were problem-based, required some critical thinking skills, and some use of computer applications to locate and/or process information or some manipulation of educational software variables to reach solutions.

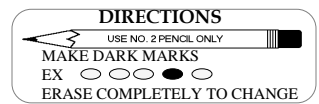
0	1	2	3	4
---	---	---	---	---

**Very meaningful use of computers:**

Activities were based on meaningful problems, required critical thinking skills, and appropriate use of computer applications to locate and/or process information or manipulation of educational software variables to reach solutions.

0	1	2	3	4
---	---	---	---	---

# Observation of Computer Use (OCU<sup>®</sup>) Targeted Data Summary Form



School \_\_\_\_\_ Observer Name \_\_\_\_\_ Observer Affiliation \_\_\_\_\_

Observation Date \_\_\_\_\_ OCU # \_\_\_\_ of \_\_\_\_ Number of 15-minute segments in this observation \_\_\_\_\_

*Directions: Use information from your OCU Data Collection Forms to complete the following sections. Only mark one response per item, unless noted otherwise.*

## COMPUTER CONFIGURATION

## COMPUTER USE

1. This classroom had the following number of computers/laptops available for student use:

- None
- One
- 2 - 4
- 5 - 10
- 11 or more

2. Classroom computers were most frequently:

- Up-to-date
- Aging but adequate
- Outdated/limited capacity
- No computers were observed

3. Classroom computers were most frequently:

- Connected to the Internet
- Not connected to the Internet
- No computers were observed

4a. Total number of classrooms visited:

- 0 0
- 1 1
- 2 2
- 3 3
- 4 4
- 5 5
- 6 6
- 7 7
- 8 8
- 9 9

4b. Total number of classrooms without students using computers:

- 0 0
- 1 1
- 2 2
- 3 3
- 4 4
- 5 5
- 6 6
- 7 7
- 8 8
- 9 9

5. Classroom computers or digital tools were most frequently used by:

- Few (less than 10%) students
- Some (about 10-50%) students
- Most (about 51-90%) students
- Nearly all (91-100%) students
- Students did not use computers

6. Students most frequently worked with computers or digital tools:

- Alone
- In pairs
- In small groups
- Students did not use computers

7. Student computer literacy skills were most frequently:

- Poor
- Moderate
- Very good
- Not observed

8. Student keyboarding skills were most frequently:

- Poor
- Moderate
- Very good
- Not observed

### Targeted Frequency Rating

- (0) Not Observed -- Strategy was never observed
- (1) Rarely -- Receives isolated use and/or little time during the class  
-- Clearly not a prevalent and/or emphasized component of teaching and learning during the class.
- (2) Occasionally -- Receives minimal or modest time or emphasis during the class.  
-- Not a prevalent and/or emphasized component of teaching and learning during the class.
- (3) Frequently -- Receives substantive time or emphasis during the class.  
-- A prevalent component of teaching and learning during the class.
- (4) Extensively -- Receives substantive time and/or emphasis during the class.  
-- A highly prevalent component of teaching and learning during the class.

# Observation of Computer Use: Targeted Data Summary Form

## COMPUTERS/DIGITAL TOOLS

9. Indicate how frequently students used the following computers and/or digital tools

	Not Observed	Rarely	Occasionally	Frequently	Extensively
Desktop Computers	0	1	2	3	4
Laptop Computers	0	1	2	3	4
Portable Digital Devices (e.g., PDA, iPod)	0	1	2	3	4
Graphing Calculator	0	1	2	3	4
Information Processor (e.g., Alphaboard)	0	1	2	3	4
Digital Accessories (e.g., camera, scanner, probes)	0	1	2	3	4

## FREQUENCY AND TYPE OF COMPUTER ACTIVITY

10. Indicate how frequently students were engaged in the following types of computer activities.

### Production Tools Used by Students

	Not Observed	Rarely	Occasionally	Frequently	Extensively
Word Processing	0	1	2	3	4
Database	0	1	2	3	4
Spreadsheet	0	1	2	3	4
Draw/Paint/Graphics/Photo-imaging	0	1	2	3	4
Presentation (e.g., MS PowerPoint)	0	1	2	3	4
Authoring (e.g., HyperStudio)	0	1	2	3	4
Concept Mapping (e.g., Inspiration)	0	1	2	3	4
Planning (e.g., MS Project)	0	1	2	3	4
Digital Audio (e.g., Audacity, GarageBand, Mixcraft)	0	1	2	3	4
Digital Video (e.g., iMovie, Movie Maker)	0	1	2	3	4
Other (please describe) _____	0	1	2	3	4

**Indicate all subject areas involved with the use of Production Tools:**

- Language Arts  
  Mathematics  
  Science  
  Social Studies  
  Other  
  None

### Internet/Research Tools Used by Students

Information Search (e.g., Netscape Navigator, MS Internet Explorer)	0	1	2	3	4
Web Posting (e.g., Wiki, Podcast)	0	1	2	3	4
Interactive Learning (e.g., live cams, virtual manipulatives)	0	1	2	3	4
CD Reference (encyclopedias, etc.)	0	1	2	3	4
Synchronous Communication (e.g., chats, video/audio conferencing)	0	1	2	3	4
Asynchronous Communication (e.g., email, discussion boards, lists)	0	1	2	3	4
Other (please describe) _____	0	1	2	3	4

**Indicate all subject areas involved with the use of Internet/Research Tools:**

- Language Arts  
  Mathematics  
  Science  
  Social Studies  
  Other  
  None

### Educational Software Used by Students

Drill/Practice/Tutorial	0	1	2	3	4
Problem Solving (Oregon Trail, SimCity, etc.)	0	1	2	3	4
Process Tools (Geometer's Sketchpad, etc.)	0	1	2	3	4
Other (please describe) _____	0	1	2	3	4

**Indicate all subject areas involved with the use of Educational Software:**

- Language Arts  
  Mathematics  
  Science  
  Social Studies  
  Other  
  None

### Testing Software

Individualized/Tracked (e.g., Accelerated Reader)	0	1	2	3	4
Generic	0	1	2	3	4
Other (please describe) _____	0	1	2	3	4

**Indicate all subject areas involved with the use of Testing Software:**

- Language Arts  
  Mathematics  
  Science  
  Social Studies  
  Other  
  None

# Observation of Computer Use: Targeted Data Summary Form

## Overall Meaningful Use of Computers

*Directions: Indicate how frequently the following levels of computer activity were observed.*

Not Observed	Rarely	Occasionally	Frequently	Extensively
--------------	--------	--------------	------------	-------------

**Low level use of computers:**

Activities in general required no critical thinking, e.g., used computer applications for copying text or free-time drawing, or used educational software for drill & practice, tutorials, or games.

0	1	2	3	4
---	---	---	---	---

**Somewhat meaningful use of computers:**

Activities in general required very little problem-solving or critical thinking and used computer applications or educational software in a limited manner.

0	1	2	3	4
---	---	---	---	---

**Meaningful use of computers:**

Activities were problem-based, required some critical thinking skills, and some use of computer applications to locate and/or process information or some manipulation of educational software variables to reach solutions.

0	1	2	3	4
---	---	---	---	---

**Very meaningful use of computers:**

Activities were based on meaningful problems, required critical thinking skills, and appropriate use of computer applications to locate and/or process information or manipulation of educational software variables to reach solutions.

0	1	2	3	4
---	---	---	---	---

# Appendix C

## SAMPLE INTRODUCTORY LETTER TO TEACHERS



Dear Teacher:

I am \_\_\_\_\_ from \_\_\_\_\_.

I am observing your class as part of your school's evaluation of its school-wide programs. I will be visiting different classes in the school, for about 15 minutes each, to obtain an impression of the types of teaching and class activities that take place.

*You are NOT being evaluated as an individual teacher, and, your name or individual classroom observation data will NOT be identified in any report. Reporting will be done only on a whole-school basis.*

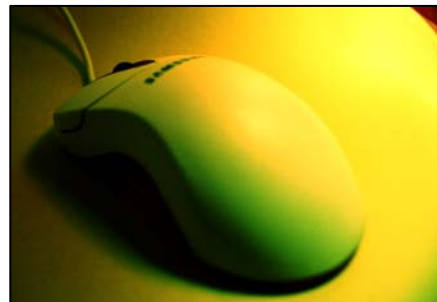
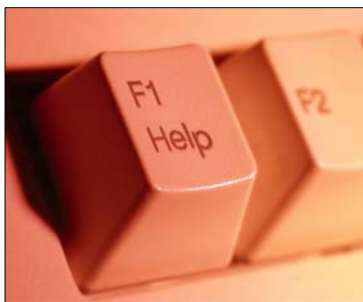
It may be helpful for me to talk with you briefly today if I have any questions about what I have observed. If so, I will try to determine when you might have a few minutes of free time.

Thank you for allowing me to visit your classroom.



# Appendix D

## OCU PRACTICE ACTIVITIES



OCU Practice Activities to be added