

## Digital Portfolios: Creating a Culture of Action and Reflection

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### Waves of Action and Reflection

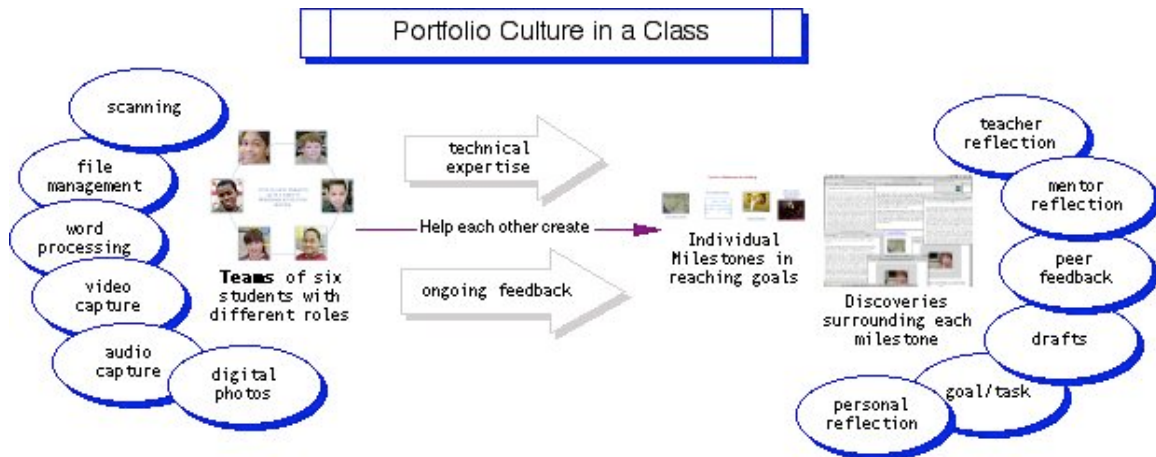
The best digital portfolios are an integral part of the learning process. They capture the waves of action and reflection that characterize the learning process. On this digital canvas, the results and the processes of learning are intertwined through ongoing reflection. Classes that are developing a portfolio culture have groups of students who are explorers, celebrate the milestones they reach, and understand the discoveries that surround their learning.



Digital portfolios have all the benefits of physical portfolios, but also face some of the same challenges. They can be collections without reflection. They can be produced in isolation rather than as part of learning community. They can be created as reports on learning, rather than being the part of the learning process that reveals what was learned and how the learning occurred.



This team-based Digital Portfolio is designed to emphasize reflection and teamwork as integral parts of the learning process. It is designed to be part of the knowledge-building classroom with a portfolio culture. Portfolio teams are formed to be the core group for discussion, uploading and support. Each team has students who have different roles: editor, audio recorder, scanner, still photographer, word processing/file management expert and videographer. These teams are entered into the portfolio and a milestone page is created for each student. Milestones are learning accomplishments. They represent growth - change in knowledge, skill or understanding. Each Milestone is surrounded with Discoveries from the learning process. The Milestone is established at the beginning of the learning process as a goal. Then students capture the by-products of learning and comment on what they learned. Their peers, teacher and parents may also comment.



This paper describes how the classroom culture and processes work with this web-based portfolio. It is based on a design experiment conducted during the 2001-02 school year in two classrooms (4th and 5th grade in two different schools) in an urban district. A video is available from the author of interviews with the teachers and students.

The fourth grade teacher focused on writing using prompts (Rabbit visiting the class, Christmas story, Fairy story, and teaching strategies to the whole group to apply to their writing. A Milestone was created for each piece of writing, and Discoveries included, 1st, 2nd and final drafts, illustrations, interviews, illustrations, and teacher comments. The fifth grade teacher used her year long thematic question, "How do people interact with their environment?" As a whole class, students read survival books such as *Julie and the Wolves* and *Troubling a Star*, then reflected on the adaptation to and of the land, air, water and living things to people. She gave other assignments that were designed to have them reflect on the characters' experiences and relate them to their own. A Milestone was created for each novel, and the final reflection on the students' interaction with their current, urban environment.

## Results

Independently, the teachers each developed a culture that varied the pace and focus of classroom activities to accommodate capturing the milestones of each individual and using the technology roles of students to create conversations and interdependence among students. Teachers and students became more reflective and focused on the relationship of the learning activities to outcomes. Interviews and observations indicate that several factors were involved:

- outcomes orientation
- multiple audiences
- multiple media for expression
- individual pacing
- teamwork
- technology

### Outcomes orientation

The emphasis on capturing the result of learning and reflecting on it increased the interest of the students and their willingness to participate fully in the process. One of the

teachers commented, "They want to do get it done and do a good job, so they can record it." Capturing the by-products of learning at many different stages heightened their importance. The focus shifted from the final product to each stage along the way. As this shift occurred students began to see each stage as a way to learn and improve what they were doing - "to get ideas to make it better" as one student put it. They began to talk about the process for each milestone as "taking time" and used phrases like "I'm working on it" and "it is getting better all the time." Teachers commented on how this emphasis on revision was new and a welcome change.

#### Multiple audiences

The multiple levels of audience - self as it was created and recorded, peer as it was discussed, teacher upon request, or parent after it was uploaded supported refinement of the products. Particularly in the writing portfolio classroom, the teacher found the students were much more likely to use the strategies they had been taught in their writing in order to improve it from draft to draft. They began listening to each other and using the language of writing to describe their work. For example, students began to recognize why their stories were not interesting, "it needs a better beginning" or "it just stops." And they began to talk about the strategies they used that did work, "I like to use dialogue because it is interesting to hear people talk. Or, "I said her dress was as blue as the night sky so you would see it in your mind when you read it. I like to use analogies." As they were better able to talk about their motives, strategies and needs, they offered and sought out help from each other.

#### Multiple media for expression

The multiple media also increased the students' engagement with the task. They were more likely (and able) than before to "do their best" at each stage of the process. For example, because students could orally reflect on their drawings or writing, they elaborated about what they were thinking and what they intended in the piece. This often led to further refinement of the piece after an interview. Students coached each other to "speak up," "stay on the topic," "think about what you are going to say first." After audio or video recordings, students immediately reviewed and discussed them and decided whether or not to redo them. Some students were more media savvy, and seemed to mimic television commentators. They used the other students' name, asked questions beginning with, "Now tell me..." and used a stage front position (body slightly turned toward the person, but head facing the camera). When being recorded as a group by the researcher, the students would strategize among themselves about the order and content of what they would do, and ask for retakes or make suggestions for editing.

#### Individual pacing

Each class had access to a computer lab for 30 minutes 4 times per week. Additional time became available sometimes, and one of the teachers took advantage of this as often as she could. The students would compose in the lab because each student had a computer. The classroom with four computers provided much more access for students to edit their work. They would compose in the lab, then print and make notes with a partner on the hard copy, then revise in "shifts" on the computers. Each student had both a set of disks for the different media collection tasks, and a folder on the hard drives of the classroom

and lab computers. After a few disks were ruined due to mishandling and a few files lost due to not saving them in the folders, the students became proficient at these systems. In the classroom with one computer, most work was accomplished in the lab, or the one computer was used for specialized tasks such as scanning or still photograph uploads.

### Teamwork

The roles proved to be more important than the team structure. Students tended to choose people to work with whose opinion they valued, who they liked, who was nice or who could help them with something they wanted to learn. Both teachers felt the team structure had merit, but felt the students needed to first develop their skills in cooperating with each other, giving productive feedback and using the technology tools. The different paces even within the small groups also meant that the team members were not always available to support each other. The technology roles were a great source of pride to the students. In one class, we made role tags, which fostered a lot of discussion about the roles along the lines of,

"I'm a videographer, and that's the best."

"No it's not, I'm a scanner and that's just as good."

"Well I get to video the interviews."

"Yeah, and I get to scan in all the pictures people do!"

Along with the discussion came some of healthy competition to define and make the roles important in the group.

### Technology

As had been mentioned, each class had access to a lab for at least four 30-minute blocks per week. For three of those four periods, most students worked on programmed learning materials unless they had passed out of their level.

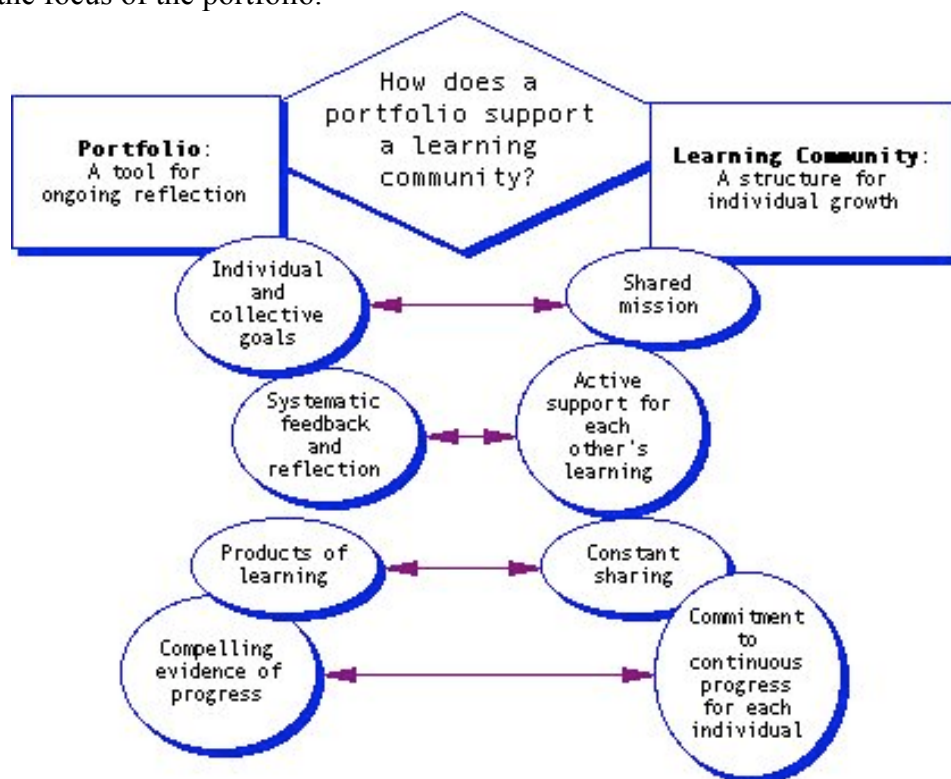
The teacher with one computer in her classroom described herself as "technophobic" although she has made extensive use of simulation software. The teacher with four computers is the technology resource person (she receives a stipend for helping other teachers) for her building. While both teachers tended toward activities that they whole class worked on together (whether direct instruction, a project or writing assignment) they both also found ways to use the roles and tasks to provide for small group and individual work to provide the support each student needed to be successful. The self-described technophobic teacher said in her final interview, "I couldn't do it without you guys, but I guess you don't want to hear that!"

The computer savvy teacher with four computers in her classroom took over the capture and upload processes and invented strategies for supporting that. From week to week she was constantly discovering new challenges in the process and overcoming them. For example, she created a "quiet on the set" strategy so taping of interviews and readalouds could be taped in the classroom. She gave the videographer final say over whether to retape, and she shifted the illustration capture from the scanner team to the still photographers when the scanner images were so large they were time-consuming to upload. These "invented" strategies for managing the technology intersected with how she modified her instruction to achieve better results in the students' writing. She led

whole class discussions every day on "why we are doing a portfolio" and "how it will help us improve our writing." She modeled interviewing and coaching strategies and then encouraged students to prepare with each other before recording - thus increasing the amount and quality of peer conversations about the writing. She enhanced the role of the illustration by having students draw, describe, then go back and edit their piece to include "absolutely everything you drew or described." She introduced the concept map as a way to have students brainstorm for ideas, then capture it, then elaborate each idea with details before a second capture to encourage students to elaborate on their ideas and images in the pre-writing stage.

### Summary

How does a portfolio support a learning community culture? In this formative experiment, the teachers used the portfolio to drive individual reflection and the process of creating it as a structure for focusing students on their individual growth in a common area (Milestones were designated by the teacher). The class goal was better writing, or understanding how people interact with their environments, and within the goal, each student had a personal challenge. The roles provided a way for students to actively support each other, and to give each other feedback throughout the process. The constant sharing increased the emphasis on the by-products of the learning process - shifting it from the final product to the growth (Discoveries) along the way. The students became more focused on their individual growth, asking for specific help and applying whole group lessons to their individual work. This yielded the compelling evidence of progress that is the focus of the portfolio.

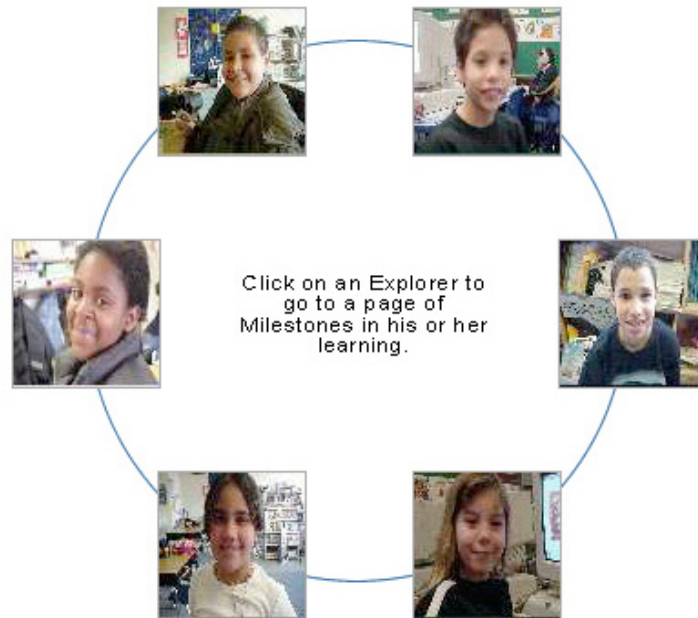


In the next few sections the parts of the portfolio are discussed in more detail and illustrated.

## Portfolio Teams

The student begins a Portfolio as a part of a team of other Explorers. They share questions, conversation and critique as part of the learning process. They support each other in the learning journey. They celebrate each milestone as the progress it represents.

We are Explorers in our learning community  
We need each other to learn.  
We learn *from* each other,  
    sharing our insights, questions and struggles.  
We learn *with* each other,  
    processing ideas as we think of them.  
We learn *by* being together,  
    listening and observing the learning experience of others.  
For portfolios to help us learn how to learn, we need a portfolio team -  
    a group of who helps us collect, reflect, plan and present.



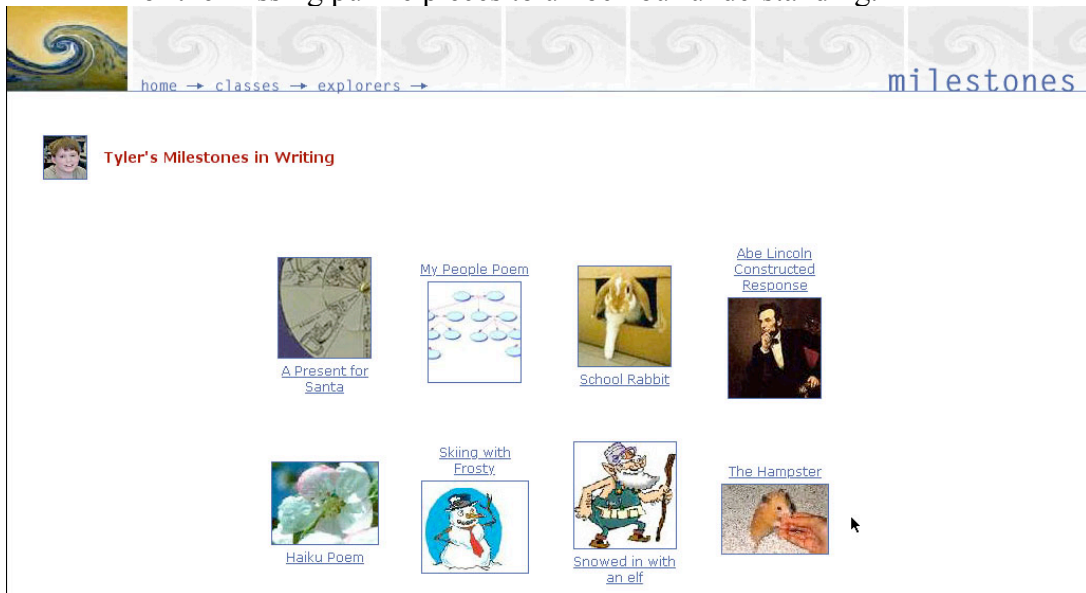
## Milestones

Milestones represent changes in what students know and can do. They are the exhibitions of learning. Each Explorer has a Milestone page to show progress. Each milestone is represented through a picture or graphic with a caption. Each Milestone is a demonstration of competence in something such as reading aloud, writing, drawing, describing a situation, or an analysis of a system. A click on the Milestone leads to a Discoveries page with reflections on how the Milestone was actually achieved.

We know we are growing because  
We changed our minds  
    through talking, reading, writing and thinking











We are smarter today than we were yesterday  
 since we shared our ideas and tested them together  
 We can show you the changes  
 from where we started to where we are today  
 We can tell you *why* we changed -  
 the ah-ha we had, the people who helped, the new information  
 we found  
 We will always be looking  
 for the missing puzzle pieces to unlock our understanding.



home → classes → explorers → milestones

**Tyler's Milestones in Writing**

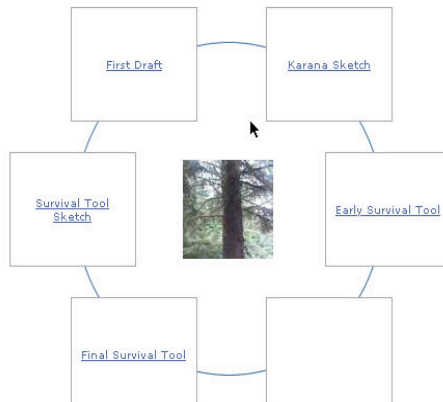
 A Present for Santa	 My People Poem	 School Rabbit	 Abe Lincoln Constructed Response
 Haiku Poem	 Skiing with Frosty	 Snowed in with an elf	 The Hamster

## Discoveries

The Discoveries provide the background, context and importance of the learning through the reflections of the student, teacher, the Explorer team, as well as task, and ways to judge the quality of work. These reflections may be in video, audio, text or scanned form. They surround the Milestone and define it.



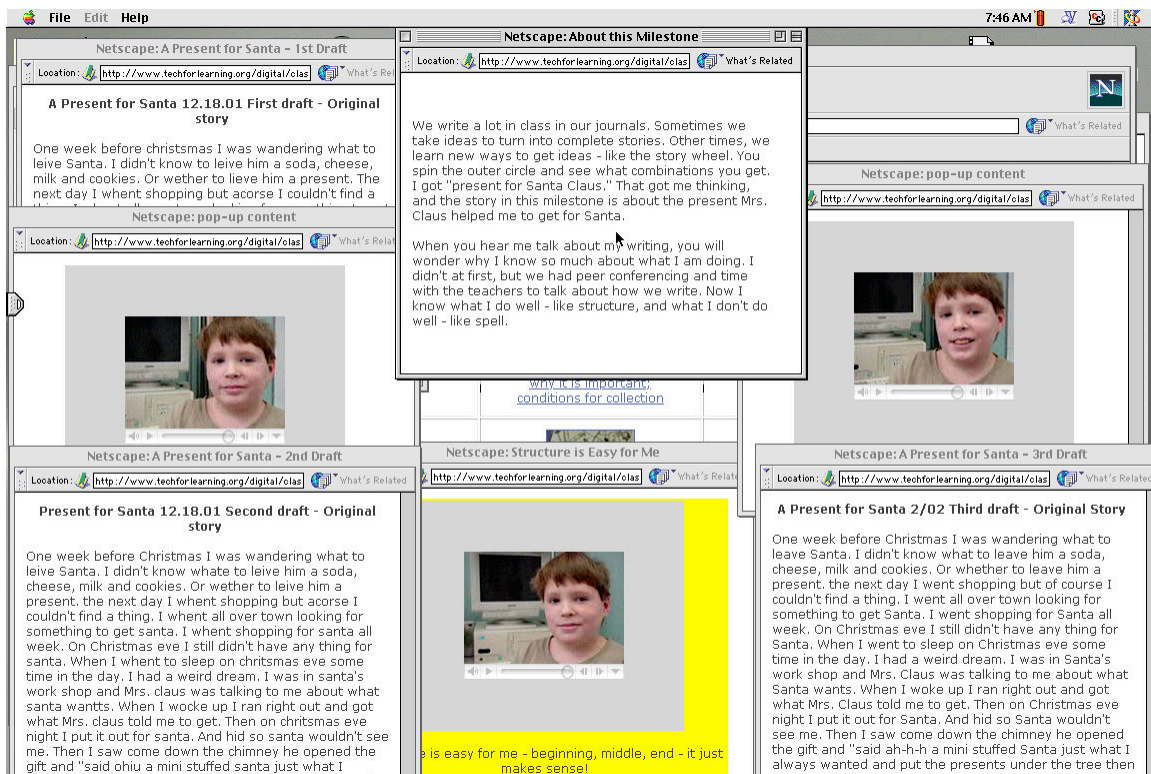
Discoveries: Karana Story by Vinnie



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It's not enough to say you know  
or think you know  
or wish you knew  
It's not enough to do the work  
and turn it on time  
complete and by the book  
It's not enough to pass the test  
every time  
with good grades  
It's only enough when you  
know what you know  
know how you know  
know how well you know and  
can show what you know





## Multimedia Skill Development

To capture the discoveries students make in the learning journey requires students to learn to use different media tools. Each portfolio team has a photographer, videographer, scanner, audio recorder, word processor and editor. Students may play more than one role, but they are prepared in small groups to use one particular portfolio device. "How to" sheets are developed by the expert team and then posted for everyone. Equipment is provided in centers. The roles are:

- **Photographer:** Uses still digital camera to take pictures of the team members, milestones and discoveries.
- **Videographer:** Uses video digital camera to capture video recordings of self, peer and teacher reflections.
- **Scanner:** Uses the scanner to capture handwritten materials, graphics, art, or other media for use in the portfolio.
- **Audio Recorder:** Uses digital audio recorder to capture reflections of self, peer or teacher on the Milestone.
- **Word Processor:** Can set up and locate folders for storing files on the local computers before uploading to the file server.
- **Editor:** Facilitates peer editing conferences, ensuring that everyone contributes. May interview the person or a team member for the portfolio

Students move through the writing process, using the technology in teams to record their Discoveries. Sample guides from a writing portfolio show how to scaffold student reflection through individual, team and group work throughout the process.

The guides were developed with the student teams. Students were taught the process, then ask to create the steps, try them on the team, and then refine them after trying them with a team member. The writing process was developed with the teacher.

STORY TITLE \_\_\_\_\_

EXPLORER \_\_\_\_\_

TEAM \_\_\_\_\_

JOB \_\_\_\_\_

Record the date you complete each milestone :-)	Date
<b>CREATING A MILESTONE</b>	
Create a Milestone with a picture (cover of the book or a general picture – you can replace this later).	
<b>CREATE A WEB: Pre-Writing Activities</b>	
1. Make a web of your ideas.	
2. Upload your web as a Discovery.	
3. Ask a <i>photographer</i> to take a picture of your web, using your Still Picture floppy disk.	
4. Discuss your web with a buddy. Add details to your web.	
<b>ILLUSTRATIONS:</b>	
1. Draw a picture to illustrate your story.	
2. Ask a <i>photographer</i> or <i>scanner</i> to take a picture of your illustration, and save it on your Still Picture floppy disk.	
3. Upload your illustration as a Discovery.	
4. Compare your illustration with the 2 <sup>nd</sup> draft. Make changes and additions.	
5. Save your Final Draft to your Text File floppy disk.	
6. Print and upload the final draft as the Discovery description by copying and pasting.	
<b>INTERVIEWS</b>	
1. Interview your teacher about your writing. Ask a <i>videographer</i> or <i>audio recorder</i> to tape this conversation. Save it on your Teacher Comments floppy disk.	
2. Upload this file as a Discovery.	
3. Ask a <i>videographer</i> or <i>audio recorder</i> to record your final reflections on how good your narrative writing is according to the rubric. Save it on your Self Comments floppy disk	
4. Upload this file as a Discovery.	

Congratulations! You have documented your Milestone!



## Editor

**Author** – Reads his/her piece out loud to

the “readers”

and takes notes on what is said during the process

**Readers** – Say what they like about the piece.

Talk about how the piece is **organized**.

What happens in the **beginning, middle** and **end**?

What works and what doesn’t work?

What **voice** is used to tell the story?

**First, second or third person?**

Who do you feel is talking to you? The author? The characters?

Discuss the **plot**.

What’s the most exciting part?

What **details** led up to the exciting part?

What is the **setting**?

Where does the action take place?

Can you “see” it?

How can we see, feel, hear it better?

Who are the **characters**?

What do you especially like?

What suggestions do you have?

**Author** – Feel free to use some, all or none of the reader’s suggestions.

Answer the following:

5. Explain what you were **feeling** when you wrote the story.
6. Do you think your readers will enjoy it?
7. Explain why you chose this topic to write about.
8. Do you think you could do a better job?
9. Are you proud of your work? Explain.

## How to Record Audio

### To “Start”



#### the recorder

- Turn off the “Hold” function by moving the button down.
- Press the “Menu” button in.
- Select the file you want to record in
- Press the “Index” button to choose either “A” or “B”
- Move the “Menu” button down to select the file number

### To “Record”

- Place the pink plug into “mic” hole on top of recorder
- Place the orange plug into the “ear” hole on top of recorder
- Place headphones on head and place microphone to the side of the mouth, but not touching.
- “Mic” switch on the headphones cord should be “on”
- Check to make sure the Folder/Index are “New” (or set on the another Folder/Index if you want to record over an old recording)
- Press the “Record” button (red light is on while recording)
- Talk
- Press “Stop” button when you are finished recording.

### To “Playback” (to hear what you recorded)

- Remove the pink and orange plugs (if you want everyone to hear the recording out loud) or leave the orange “ear” plug in if you want to listen to the recording through the headphones.)
- Go to the Index/Folder of the recording you want to hear.
- Press “Play” button and listen to recording.

### When you are finished

- Remove headphone jacks (pink and orange plugs) and turn “mic” off
- Roll up headphone cord and place in bag
- Move “Hold” switch to “up” position to lock recorder.
- Place recorder in bag.



## Photographer How to Take Still Pictures

### Capturing

- Insert the disk into the camera if it takes one.
- Turn the power on.
- Make sure the camera is in *camera* mode.
- Take the lens cap off.
- Press the picture button lightly to allow focusing. Then press it down further.
- Wait while the camera writes the file to the disc.

### Reviewing Pictures

- Put camera in *play* mode to see your picture.
- If you like the picture, take out the disc and label it!
- If you do not like the picture, go to menu, then delete, then ok, and start over at #3.

When **finished**, turn off the camera.  
Put the lens cap back on.



## Videographer How to Take Videos

### Capturing

- Insert disc.
- Turn the power on.
- Put the camera into *movie* mode.
- Take the lens cap off.

- Press and hold down the picture button for the entire time you wish to record.
- Wait. The camera is writing the file to disc.

### Recording

- Switch camera to play mode to watch your movie.
- Press play. If you like it, take the disc out and label it!
- If you don't like it, delete it and start at number 3

Turn camera off.

Put the lens cap back on.

Remember: The camera only records 60 seconds. The disc only holds one 60 second clip.



## Word Processing

### Create a Folder

- Open “**My Documents.**”
- Go to *file*, then *new*, then *folder*.
- Name the folder.

### Open a Folder

- Open “**My Documents.**”
- Click on the right person's folder.
- Click on the file (story) you wish to work on.

### Save to Folders

- After finishing typing, click on *file*.
- Click on *save as*.
- Click on the writer's folder.
- Name the file.
- Click on *save*.

### Save to Disk

- After writing, insert floppy disc.
- Go to *file*, then to *save as*.

- Click on arrow that points down at the top of the screen.
- Click on **A drive**.
- Click on **Save**.

#### **Create a File**

- Under **File**, choose **New**
- Begin typing your ideas

#### **Spell Check**

- Under **Tools**, choose **Spelling and Grammar**
- When a problem is identified, it will stop and make suggestions for change. Review the comments and choices. Make a choice and click, **Change**.

#### **Save a File**

- Under **File**, choose **Save**
- Name the file with your name, the subject and date
- Find the **A drive** to save the file to your floppy disk
- Choose the **C Drive** to save the file to your folder in **My Documents**.

#### **Open a File**

- Go to **C Drive, My Documents** and open your folder.
- Choose the file you wish to work on - double click it to open it.



## **How to Use a Scanner**

#### **Scanning**

- Place the picture or written paper on the glass
- Choose **graphic**
- Choose **scan**

#### **Reviewing and Saving**

- Open the file and review the picture.
- Adjust or save
- Save the picture in your folder, or on your floppy



## **SUMMARY**

Tools and time. Respect and reflection. Conversation and continuity. These are the cornerstones of a portfolio culture. For portfolios to affect learning, students need the cognitive and practical tools to document the results of their learning activities over time. For those artifacts to have meaning, they must be respected as worthwhile, not as inferior attempts to meet goals. Their worth is clear when students reflect on the thinking behind the work - the strategies and context. These reflections lead to conversations about the work, the goals and the experience or information needed to improve. These conversations create continuity for the learner and focus schooling on his individual growth. Reflection and conversation improve students' ability to learn and teacher's effectiveness in teaching. In a portfolio culture students are more intent on learning and instruction is more focused.