

## Portfolios

A portfolio is a showcase of student work; it is a place where students can demonstrate their mathematical power in specific and general ways. Student thinking, growth over time, mathematical connections, students' views of themselves as mathematicians, and the problem-solving process are each emphasized in creating, maintaining, revising, and assessing student portfolios. In addition, teachers should be working with students to regularly review their portfolios in order to establish short-term and long-term goals.

What's in a portfolio? Many of the following kinds of items may be included in portfolios. Of course, no one student would be asked to present all of these:

- table of contents
- introductory and self-assessment letters
- long-term projects
- daily notes
- journal entries
- excerpts from dialogue notebooks
- test problems
- physical models of mathematical concepts
- mathematical models of real world phenomena
- interviews between student and peer
- interviews between student and teacher
- art work done by the student
- a mathematical autobiography
- audio and video tapes of work in progress and/or finished products
- scale drawings
- photographs
- homework
- peer critiques and evaluations
- commentary from parents about portfolio contents
- self-generated problems and solutions
- papers showing student's corrections of errors and misconceptions
- teacher observations of student
- group projects
- excerpts from team notebooks

Students can be informed about their specific portfolio assignment through discussion of the following sample hand-out:

### Middle School Portfolio Assignment

In this unit, you will be building a math portfolio that demonstrates your understanding of the content. Your portfolio will include several different kinds of work.

1. Cover Include an illustration of one or more of the concepts studied in this unit.
2. Table of Contents List what is in the portfolio.
3. Self-evaluation What did you learn? What do you understand well? What do you still need to work on?
4. Key ideas Select 3-5 key concepts from this unit, write about what they are and why they are important, and include two examples for each.
5. Work that needs improvement Explain what you did not understand originally and revise the work.
6. Best work Explain what you learned and why you are proud of it.
7. Favorite activity or assignment Explain what you learned and why it is your favorite.
8. Creative piece Create a story, poem, or picture that illustrates one or more concepts from the unit.

[Source: [New Jersey Mathematics Curriculum Framework](#)]

**SELF-ASSESSMENT  
PORTFOLIO ENTRY COVER SHEET**

1. Explain the assignment in detail. (When did you do this? In which class/unit did you do this? Why did you do this?)

---

---

---

---

2. What important things did you learn from doing this assignment? (You may discuss skills, strategies, ideas, concepts, group-processing skills or other ideas that come to mind.)

---

---

---

---

3. How did this portfolio entry relate to the real world? How will it help you in your real life?

---

---

---

---

4. What did you do well in this assignment that you want noticed?

---

---

---

---

5. What would you improve if you could do this over again?

---

---

---

[Source: [New Jersey Mathematics Curriculum Framework](#)]

Evaluation portfolios may be accomplished in much the same way as performance tasks or open-ended tasks.

- |         |   |
|---------|---|
| Level 4 | Includes a variety of work, with evidence of use of many different resources. Papers show understanding of content, organization and analysis of information, clarity of communication, enthusiasm for math. Includes self-assessment.          |
| Level 3 | Variety of work. Fairly good explanations, with some use of resources. Good understanding of basic mathematics processes. Missing indications of enthusiasm, self-assessment, extensive investigations, and/or student analysis of information. |
| Level 2 | Little evidence of original thinking. Minimal student explanations. Over-concentration on low-level tasks, such as computation.   |
| Level 1 | Almost no creative work. Mostly ditto sheets or textbook problems. Almost no evidence of student thinking. No evidence of discussion of mathematical ideas. No explanations.  |

(Adapted from Stenmark, 1991, p.44)

### **Think-Alouds**

Mrs. Seeliger, a second grade teacher, uses the technique of a think-aloud with her students in order to learn how they problem solve. “In order to see how my students are understanding new concepts, constant assessment is required. At this age, my students are changing rapidly and how they understood something yesterday is no guarantee as to how they’ll respond today. As a result, I use think-alouds frequently. The children love to be verbal, so talking aloud while they think through a problem is something they enjoy. This technique helps me to hear what the children are thinking and to hear how they are problem solving. Such insights help me to see what changes I need to make in order to teach better.”

[Source: [New Jersey Mathematics Curriculum Framework](#)]