

SCIENCE PORTFOLIO HANDBOOK

Developed by Ms. O. Jansen, Ms. N. Lasher, Ms. L. Lugo, Mrs. S. Colman, Mrs. S. Sica-Fosella

Master Teachers of Science

Updated May 2015

What is a portfolio?

A portfolio is a collection of work “to support reflection that can help students understand their own learning and to provide a richer picture of student work that documents growth over time” (Barrett, 2005).

Why should students keep science portfolios?

Portfolios show progression in learning over time. Selecting portfolio pieces allows for student choice, and their own evaluation of what best showcases their learning. Reflection is a key portion of the portfolio – allowing students to consider their assignment, learning, strengths and weaknesses, and how to improve. As a student progresses through grade levels, peer review and constructive commentary play a role for student self-assessment and opportunities to plan progress.

What are the key characteristics of a science portfolio?

A portfolio is a living, growing selection of a student’s work. Each addition is carefully selected by the student for a specific reason that she or he will explain.

- A portfolio is a long-term form of self reflection and assessment that students do together with their peers, teachers and school community, via commentary and feedback.
- A portfolio is not just a folder containing student work but a **self-selection**. Student selection and choice is vital in the process. Explaining their chosen pieces and evaluating their learning is essential. A class of students should not all have the same exact pieces every month.
- A portfolio provides student work artifacts that show growth over time. By reflecting on their own learning (self-assessment), students begin to identify the strengths and weaknesses in their work. These weaknesses then become improvement goals.
- The criteria for selecting and assessing the portfolio contents must be clear to the teacher and the students at the outset of the process.
- Student self-reflection becomes deeper with more opportunities for peer review as they mature.

Why use portfolio assessments?

1. Provides students with more opportunity to have control over their learning and choice in showcasing themselves.
2. Shows growth over time in a less stressful manner than traditional testing assessments.
3. Promotes student self-reflection, evaluation, and critical thinking skills.
4. Allows students to set learning goals for themselves, and to proactively plan to meet those goals.
5. Encourages cooperative learning with peer collaboration and constructive criticism.
6. Provides opportunity for end of year reflection with a structured body of work to see growth over time.
7. Allows for vertical assessment between grades during transition. Assists teachers with pre-assessments in the beginning of the year.

Essential Elements of a Science Portfolio

The Department of Curriculum and Testing for Science of the Orange School District has determined that the following protocols for the science portfolio:

- Work from each school year should be present. 3 items per previous grade should be on the left side of the portfolio, behind the selection table of contents sheet.
- 3-5 items per marking period (at least one per month) are selected for the current year. These items, with their reflections are placed in the right side of the portfolio.
- Tests and quizzes are not eligible choices.
- Eligible portfolio choices include:
 - Investigation
 - Lab Report
 - Open Ended Response
 - Writing Sample
 - Project
 - Substantial Homework
 - Classroom Assignment
 - FOSS Extensions
- Science Fair projects are a mandatory part of the portfolio and must be included.

Reflecting on Progress in Science

Student information: Self-reflections and portfolios - 1st - 4th Grade

What is a self-reflection?

A self-reflection is a process in which you look back on your science work and examine the strengths and weaknesses of the work. You will be choosing samples of your science work, reflecting back on it, and putting the items in your science portfolio.

Directions for completing a portfolio selection and self-reflection:

1. Look through your work folder and/or science notebook. Select a piece of work from the last month that you are proud of or that demonstrates your best work (what you know and can do). Do not choose a test or a quiz. You can choose a class work assignment, homework assignment, writing sample, laboratory, or project. At the end of the year your portfolio should contain a variety of science assignments. Your independent Science Fair Project must also be included in your portfolio.
2. Take time to reflect back on your work and think about the strengths and weaknesses of the assignment you chose.
3. Complete a self-reflection by answering the questions on the self-reflection hand-out.
4. Staple or clip together your (1) the assignment you chose and (2), the self-reflection.
5. Add this piece to your portfolio. Update your Table of Contents. Turn in your portfolio to your teacher.

Name: _____ Grade: _____

My Science Portfolio

Year: _____



Core Selections	Title or Topic of Work	Date started	Date completed
First Marking Period			
September			
October			
Beginning of November			
Second Marking Period			
End of November			
December			
January			
Third marking Period			
February			
March			
Beginning of April			
Fourth Marking Period			
End of May			
May			
June			

Students may choose from an investigation, open ended response, writing sample, project, substantial homework or other assignment (with teacher approval), etc. Students may not choose from tests or quizzes. Students must include their science fair project, if applicable.

Name: _____ Date: _____

Good Work!

1st - 2nd Grade Reflection Sheet



Rate your effort on your work
by coloring in the stars. More
stars mean more effort.



Why did you choose this work for your portfolio?



What does this work show you can do?



What are you still learning?

Reflecting on Progress in Science

Self-reflection of Science Work – 3rd – 4th Grade

Name of assignment: _____

Date of assignment: _____

Rate your effort on this assignment: _____

4	3	2	1
I worked hard and completed the assignment.	I completed the assignment but not to the best of my abilities.	I tried but gave up when it got difficult.	I put very little effort into this assignment.

Describe the work that you chose and why you chose it for your portfolio.

What did you learn while completing the assignment (skills or knowledge)?

What do you want/need to learn about this topic?

How could you go about learning more on the above topic?

Reflecting on Progress in Science^[M1]

Student information: Self-reflections and portfolios – 5th – 7th Grade

What is a self-reflection?

A self-reflection is a process in which you look back on your science work and examine the strengths and weaknesses of the work. You will be choosing samples of your science work, reflecting back on it, and putting the items in your science portfolio.

Directions for completing a portfolio selection and self-reflection:

1. Look through your work folder and/or science notebook. Select a piece of work from the last month that you are proud of or that demonstrates your best work (what you know and can do). Do not choose a test or a quiz. You can choose a class work assignment, homework assignment, writing sample, laboratory, or project. At the end of the year your portfolio should contain a variety of science assignments. Your independent Science Fair Project must also be included in your portfolio.
 2. Take time to reflect back on your work and think about the strengths and weaknesses of the assignment you chose.
 3. Use the Portfolio Assignment Rubric to assess yourself on the chosen assignment. Keep your assessment for yourself. Trade assignments with someone else in the class and assess your partner's assignment as well.
 4. Complete a self-reflection by answering the questions on the self-reflection hand-out.
 5. Staple or clip together (1) the assignment you chose, (2) your scoring rubrics from yourself and your peer, and (3), the self-reflection.
 6. Add this piece to your portfolio. Update your Table of Contents. Turn in your portfolio to your teacher.
-

Reflecting on Progress in Science

[M2]

Portfolio Assignment Rubric - 5th – 7th Grade

Assess yourself:

Look over the assignment you chose for your portfolio. Assess its strengths and weaknesses. Answer the following questions and rate 1 – 5, with 5 being a positive score.

1. Is the assignment neat and clear? Is it easy to read and understand the information?

Circle one:

1 2 3 4 5

2. What evidence demonstrates your understanding of the topic?

Circle one:

1 2 3 4 5

3. Is the assignment complete?

Circle one:

1 2 3 4 5

4. Does the assignment make sense – responses are relevant to the assignment and topic?

Circle one:

1 2 3 4 5

Total Score: _____

How did you do overall and how can you do better?

Reflecting on Progress in Science

[M3]

Portfolio Assignment Rubric – 5th – 7th Grade

Assess a **peer**:

Look over the assignment you chose for your portfolio. Assess its strengths and weaknesses. Answer the following questions and rate 1 – 5, with 5 being a positive score.

1. Is the assignment neat and clear? Is it easy to read and understand the information?

Circle one:

1 2 3 4 5

2. Does the author understand the topic? How do you know?

Circle one:

1 2 3 4 5

3. Is the assignment complete?

Circle one:

1 2 3 4 5

4. Does the assignment make sense – responses are relevant to the assignment and topic?

Circle one:

1 2 3 4 5

Total Score: _____

Provide constructive feedback below. How did they do overall, and what can they improve?

Reflecting on Progress in Science

[M4]

Self-reflection of Science Work – 5th – 7th Grade

Name of student: _____

Name of assignment: _____

Date of assignment: _____

Rate your effort on this assignment: _____

4	3	2	1
I worked hard and completed the assignment.	I completed the assignment but not to the best of my abilities.	I tried but gave up when it got difficult.	I put very little effort into this assignment.

Describe the work that you chose. What kind of assignment was it? Explain what you had to do to complete this assignment.

How does the score you assigned yourself for this work compare to the score your peer assigned you?

Why did you choose this assignment to add to your portfolio?

What did you learn while completing the assignment (skills or knowledge)?

Reflecting on Progress in Science^[M5]

Self-reflection of Science Work *Part 2*

What parts of the assignment could have been done better?

How could you improve in these areas?

List one learning goal that you have for science class for next month.

How could you achieve this learning goal?

Reflecting on Progress in Science

[M6]

End-of-Year Portfolio Reflection Questions

Name: _____ Grade: _____ Date: _____

Look through your portfolio. Organize the items in your portfolio in date order. Take time to reflect upon the changes you see over a period of time. Answer the questions below.

- Describe the contents of your portfolio.

- What do you know now that you did not know before?

- Do you see an improvement in your work? Explain.

- What improvements would you still like to make?

Reflecting on Progress in Science

End-of-Year Portfolio Reflection Essay

Write an essay reflecting on your progress in science. Use the questions you answered above as a guide for your writing.

This image shows a full page of blank, lined paper. It features approximately 20 evenly spaced horizontal black lines running across the width of the page, typical of notebook or legal stationery. The background is a solid off-white color. There are no margins, text, or other markings present.

Reflecting on Progress in Science

[M8]

Self-reflection of Science Fair Project - 2nd Grade

Student Name: _____

Invention: _____

Rate your effort on this assignment:



 Where did you get your idea for your invention?

 What kind of research did you complete to design your invention?

 What challenges did you have while completing your project?

 What did you learn while completing your project?

 How could you improve your project for the future?

Reflecting on Progress in Science^[M9]

Self-reflection of Science Fair Project – 3 – 4th Grade

Student Name: _____ Grade: _____

Science Fair Topic: _____

Experiment Title: _____

Rate your effort on this assignment: _____

4	3	2	1
I worked hard and completed the assignment.	I completed the assignment but not to the best of my abilities.	I tried but gave up when it got difficult.	I put very little effort into this assignment.

Think about your project. Was it complete? Did it reflect a true effort and your true potential? What did the quality of your display say about your work habits and pride in academic endeavors?

➤ What made this project a true investigation and not just a display or demonstration?

➤ What were your project’s strengths?

➤ What are the areas for improvement?

Reflecting on Progress in Science

Self-reflection of Science Fair Project *Part 2*

- What did you learn in the course of completing your project?

- What do you still wish to learn about this topic? Name at least two things.

WORK HABITS

Outline things you did really well with this project and explain how you could use it in other subjects.

Reflecting on Progress in Science

[M10]

Self-reflection of Science Fair Project – 5th – 7th Grade

Student Name: _____ Grade: _____

Science Fair Topic: _____

Experiment Title: _____

PROJECT

Think about your project. Was it complete? Did it reflect a true effort and your true potential? What did the quality of your display board say about your work habits and pride in academic endeavors? Was it reflective of the goals set forth in the beginning of the project development process? How did your project compare to those of your peers?

Provide a valid critique of your project's:

➤ Scientific integrity

➤ Strengths

➤ Areas for improvement

Reflecting on Progress in Science^[M11]

Self-reflection of Science Fair Project *Part 2*

WORK HABITS

How will you utilize the stronger areas of your work habits to be successful in other academic endeavors?
(Be certain to identify the specific work habit(s).)

How will you work to avoid the pitfalls of your work habits to ensure a better quality of work? (Be certain to identify the specific poor habit(s).)

_____ reviewed your portfolio on _____

Comments: _____

_____ reviewed your portfolio on _____.

Comments: _____

_____ reviewed your portfolio on _____.

Comments: _____

_____ reviewed your portfolio on _____.

Comments: _____

_____ reviewed your portfolio on _____.

Comments: _____

_____ reviewed your portfolio on _____.

Comments: _____

SCIENCE PORTFOLIO PURGING GUIDELINES

GRADES K-2

Purging and Next-Grade Transitioning

Two weeks prior to the last week of school, students must have the opportunity to review and evaluate their portfolio to date; celebrating their progress and possibly setting goals for future growth. During this process, students **will retain ALL of their current artifacts** in their Science Portfolios. In the following school year, after the new teacher has reviewed the portfolios, students will select 1-2 pieces to remain in the portfolio and take the rest home.

GRADES 3 – 7

Purging and Next-Grade Transitioning

Two weeks prior to the last week of school, students must have the opportunity to review and evaluate their portfolio to date; celebrating their progress and possibly setting goals for future growth. During this process, students will retain the following artifacts in their Science Portfolios:

- ✓ 1-2 Investigation Response Items w/respective Self-Reflection Sheet(s)
- ✓ 1-2 Lab Reports w/respective Self-Reflection Sheet
- ✓ 1-2 Response to a Challenges w/respective Self-Reflection Sheet
- ✓ 1-2 FOSS/CPO Extension Activities w/respective Self-Reflection Sheet
- ✓ 1-2 FOSS/CPO Classroom Assignment w/respective Self-Reflection Sheet
- ✓ 1-2 Writing Samples w/ respective Self-Reflection Sheets
- ✓ 1-2 Student Choice Items w/respective Self-Reflection Sheet(s)
- ✓ 1-2 Checkpoint Choice
- ✓ Student's written account of their growth in Science

June 23, 2015. Forward all portfolios to next year's receiving teachers or the designated point persons at the appropriate school(s).