

## IMP I – SUGGESTIONS and SUPPLEMENTARY MATERIALS

This supplement is a collaboration of Philadelphia teacher-educators who have taught IMP since 1993.

This package offers materials for students, for instructors and for classroom resources. It provides any Interactive Mathematics Teacher with suggested hints, guidelines, supplementary worksheets, short quizzes and management ideas.

The objective is to create a teaching instrument that shows teachers how to enhance the teaching of the Interactive Mathematics Program. ***This is not designed to replace the teacher's manual.*** You should feel free to use those aspects of this package which are appropriate to the needs of your individual classroom. The components of this teaching and learning package include:

- Release Form to Share Student Work
- Student/Parent Contract
- Welcome Letter to Parents
- Suggestions to Help Teachers Make Efficient Use of Classroom Time (Lesson Plan Hints)
- Suggestions for Using and Grading Portfolios
- Teacher Portfolio Rubric
- Two Student Version of Portfolio Rubric
- Instructions for Students for Building Portfolios (Replaces Instructions in Text)
- Portfolio Grading Sheet
- Point Rubric for Grading Problems of the Week
- Sample Patterns Notebook Check (To check if students are taking good notes without grading notebooks. Students may use their notebooks – but no other source – to answer these questions.)
- Supplementary Worksheets – referred to in suggestions to teachers
- Supplementary Quizzes and Assessments – referred to in suggestions to teachers

## **Release Form to Share Student Work**

Dear Students and Parent(s)/Guardian(s),

Because of the “cutting-edge” nature of the Interactive Mathematics Program, many teachers and educators from Philadelphia and beyond frequently visit our classrooms. On these occasions, those visitors ask to see additional samples of student work. There will also be circumstances under which we are asked to film (or take photographs of) a class in progress, for the purpose of allowing large groups of educators to experience this curriculum.

We are asking that you sign the form below, on the appropriate line, and return it to your child’s classroom teacher.

\_\_\_\_\_

Student Name (Printed) \_\_\_\_\_

Student **Signature** \_\_\_\_\_ Date \_\_\_\_\_

Parent/Guardian (Printed) \_\_\_\_\_ Date \_\_\_\_\_

Please **sign** the appropriate sentence below:

I, \_\_\_\_\_ **GIVE** my permission for the

(Parent/Guardian **Signature**)

**Interactive Mathematics Program** to share my child’s work with others.

I, \_\_\_\_\_ **DO NOT GIVE** my permission

(Parent/Guardian **Signature**)

for the **Interactive Mathematics Program** to share my child’s work with others.

## STUDENT / PARENT CONTRACT

(**Keep** upper portion of this contract for your personal reference and **Tear off and Return** bottom)

### Student Responsibilities:

- \* Attend class regularly.
- \* Be prepared with all materials and assignments.
- \* Keep an organized notebook **in a loose-leaf binder.**
- \* Participate actively in class in group discussions and projects.
- \* Respect others in your group and class.
- \* Complete all assignments to the best of your ability.
- \* Commit to at least three years of the IMP experience.

### Parent Responsibilities:

- \* Provide a time and place for your child to do **daily** study and homework.
- \* Review and monitor attendance.
- \* Communicate with teachers and the school.
- \* Provide your child with the supplies needed.
- \* Provide your child with the encouragement and support in the learning of mathematics.

### Materials needed in class:

- \* A loose-leaf binder
- \* Lined loose-leaf paper
- \* Loose-leaf **graph** paper
- \* Loose-Leaf dividers (at least 3)
- \* Colored pencils (at least 4)
- \* Regular pencils
- \* A 6-inch / centimeter ruler and a protractor
- ++ \* A scientific calculator (can be purchased for under \$15)

++ If economically feasible, the purchase of a Texas Instruments graphing calculator (TI-83) is highly recommended. These calculators run about \$95.

\*\*\*\*\*

I have read the above responsibilities and agree to carry them out.

Student Name (Printed) \_\_\_\_\_

Student **Signature** \_\_\_\_\_ Date \_\_\_\_\_

Parent/Guardian (Printed) \_\_\_\_\_

Parent/Guardian **Signature** \_\_\_\_\_ Date \_\_\_\_\_

Home Address (Printed) \_\_\_\_\_

number

street

zip

Phone Number \_\_\_\_\_

home

work + extension

September, 2001

Dear Students and Parent(s)/Guardian(s),

Welcome to the Philadelphia family of the Interactive Mathematics Program (IMP). This math class will most likely be very different from any other math class that you have ever attended before. Instead of studying just one type of math per year (algebra, geometry, etc.), this year we will be studying topics from all of the following areas: algebra, geometry, trigonometry, number theory, statistics and probability.

IMP students work during class primarily in small groups and have **homework every night** as well as a weekly problem (**POW**) to work on. We encourage you to make IMP work a family event and to assist and participate whenever you are able. The problems are interesting and thought-provoking. You will have fun discussing them together.

Your textbook provides you with daily classroom activities and homework assignments only. It does not contain **explanatory passages** on concepts. Those are the products of the program's classroom discovery and cooperative learning techniques. Therefore, it is essential for the students to both actively participate on a daily basis *and* to keep a careful and thorough notebook. Students who complete their assignments and participate in class will succeed in the Interactive Mathematics Program and will learn a great deal of mathematics.

We are looking forward to an exciting new year where we all gain in our appreciation of the power of mathematics.

Sincerely,

## **SUGGESTIONS for TEACHERS**

### **Beginning of the Year**

Teacher Hint: Send out letter during summer or on first class day including supplies needed for IMP.

Teacher Hint: You may want your students to sign an IMP contract and release form at the beginning of the school year. There are some sample letters included here for your convenience.

Teacher Hint: To help expedite collecting and returning class papers, give each group a numbered folder. Students place work to be collected in their group's folder. You can grade and record them while in these folders. Before class just place the folders on the appropriate tables. When the students take their seats, they can remove their work from the folder. Absentee's work will remain in the folder until the student returns.

### **Unit: Patterns**

#### **Day 1**

Teacher Hint: Discuss whys and hows of portfolio early in the unit. Included here is a sample breakdown grading system for assessing portfolios. Also included is an accompanying grading sheet for each student portfolio to assist you. This sheet can be stapled to each student's portfolio to explain the grade.

Teacher Hint: Notebook Quiz - Included here is a sample notebook quiz to encourage students to keep a complete notebook. This can be done during each unit.

#### **Day 6**

Worksheet: Supplemental work on In-Out Tables.

#### **After Day 9**

Worksheet: Supplemental work on Order of Operations.

Teacher Hint: After grading the first POW consider making overhead copies of good and bad examples of the students' work (omitting names, of course). If time is an issue, post some examples around the room for reading during students' spare time.

Quiz: Order of Operations

#### **After Day 11**

Worksheet: Supplemental work on Sigma Notation.

Quiz: Sigma Notation.

#### **Day 13**

Teacher Hint: Consider giving a pretest for signed numbers. Many students think they understand the concept and are resistant to this review. A pretest can be an eye opener for many students. There is a pretest included here.

## After Day 14

Worksheet: This is a supplemental worksheet to reinforce signed number skills.

Quiz: Post-test for signed numbers.

## Day 16

Teacher Hint: Homework 16: *Another In-Outer* p. 47, problem #1, in original edition of text - solid purple circle and square should be black.

## Day 17

Worksheet: Supplemental worksheet on using the protractor.

## Day 18

Teacher Hint: The homework for this day requires some instructions prior to assigning. Consider giving each group two or three specific polygons to investigate. This will ensure a smoother class discussion tomorrow.

Worksheet: Included here is a worksheet to assist students with *Polygon Angles*.

## Day 19

Teacher Hint: *A Proof Gone Bad* could be a quick classroom discussion or could be omitted without affecting the rest of the unit.

Teacher Hint: Before assigning the homework, make sure your students understand the term “regular polygon”

Quiz: Geometric Vocabulary and Using the Protractor.

## Day 20

Teacher Hint: Remind students that sigma and pi symbol can be used for Homework 20: *Squares and Scoops* for describing the rule.

## Day 22

Teacher Hint: The essence of Homework 22 should come out during the discussion of Homework 21: *The Garden Border*. If your students don't mention the different variations, you might mention a few. This allows you to skip Homework 22. *Stump Your Friends* becomes Day 22 activity and you can assign Homework 23: *Cutting Through the Layers* tonight.

## Last Day of Unit

Teacher Hint: Before the students write their cover letter, consider spending about 15 minutes discussing all the math concepts covered during this unit. Let the students brainstorm. This can be done at the end of every unit.

## Assessments

Teacher Hint: Consider what (if anything) you want to allow the students to use during the in-

class exam. You might consider open notes, open text, or permitting the students to make a study sheet of their own to use during the assessment. This last suggestion helps the students to get organized while studying.

In-Class Assessment: It has only a few questions and could use some supplemental skill type problems.

## Unit: The Game of Pig

### Before Day One

Teacher Hint: Emphasis needs to be made on use of fractions instead of decimals. Students may need extensive work on fraction arithmetic.

### After Day 6

Worksheet: Supplemental worksheet on calculating probability - emphasize fraction form for answers.

### Day 7

Teacher Hint: Make copies of rugs from *Rug Games* for students to work from. They will need these copies again on Homework 12: *Pointed Rugs*.

### After Day 8

Quiz: Simple probability

### After Day 12

Worksheet: Supplemental worksheet giving students practice working with area rugs to answer specific questions.

### Day 16

Teacher Hint: It's helpful to give students a specific format for calculating expected value and to insist that they follow it. It is also convenient to use:  $EV( )$  to denote Expected Value.

## SUGGESTED FORMAT FOR EXPECTED VALUE PROBLEMS

Ex: *Spins and Draws*, question 1

For 50 Games

	Probability of event	# of games	# of wins	Payoff per win	Total payoff	Expected Value
Al	1 / 5	50	10	\$1.25	\$12.50	(+\$.50/50) = +\$0.01
Betty	4 / 5	50	40	\$0.30	\$12.00	(-\$.50/50) = -\$0.01

Divide "Total payoff" entry by # of games



## Day 17

Teacher Hint: POW 7: *Make a Game* - Students enjoy this POW. However, it requires a great deal of class time. The amount of mathematics learned is limited, grading is problematic and subjective, and students tend to receive inflated grades. This POW could be skipped without hurting the integrity of the unit.

## After Day 17

Quiz: Expected Value

## Day 18

Teacher Hint: Homework 18: *The Lottery and Insurance – Why Play?* could be a class discussion instead of a homework assignment.

## Day 20

Teacher Hint: Included here is a TI program for Homework 20: *A Fair Deal for the Carrier?*

### Calculator Simulation Program for *A Fair Deal for the Carrier*

```
PRGM : RANDOM
: 0 → T
: 0 → N
: Lbl 1
: Rand → R
: If R < .2
: T + 20 → T
: If R ≥ .2
: T + 1 → T
: N + 1 → N
: If N ≤ 100
: Goto 1
: T/100 → E
: Disp "EXPECTED VALUE"
: Disp E
```

## After Day 21

Worksheet: Supplemental worksheet requiring students to use both tree diagrams and rugs.

## Day 22

Teacher Hint: Included here are overlays to assist with explaining different strategies for Little Pig and Big Pig. They use alternating vertical and horizontal splits (this is different from present teacher's manual). There is also included an alternate way to do multileveled rugs that does not involve cutting up the rugs into smaller and smaller parts.



## After Day 23

Teacher Note: You may find it necessary to have more teacher directed discussions from here to the end of the unit. Don't expect every student to understand everything. Try to keep pace. Don't be discouraged.

## Assessments

In-class Assessment: This problem needs some direction.  
Have students make a rug or a tree.  
Answer the question: "What is the probability of getting 7, 3, or 0 points respectively?"  
Now they can answer the original question.

## Unit: The Overland Trail

Teacher Hint: Whenever assigning or assessing a student-made graph, make sure to emphasize proper labeling of axes.

### Day 1

Teacher Hint: Read *Overland Trail*, discuss Homework 1: *Just Like Today*, read *Overland Trail Families*, and begin groups working on *The Family*. Families can be finished for homework.

These families are later used in questions about buying supplies. Since this would lead to different answers for each child, we suggest that class families (one of each type) are selected and posted. These numbers can be used in future problems. Totals from these families can be used for the class wagon train.

Teacher Hint: *The Family* p. 195, second bullet under the Large Family should read: "There are between one and six hired hands inclusively." This will save confusion and time.

### Day 5

Teacher Hint: *Planning for the Long Journey* - Part I can be skipped. If you want to include a class discussion of Part 1, keep it short and don't let students open their text. Part 2 can be done as is. Homework 5: *Lunchtime* needs to be discussed before assigning.

### Day 6

Teacher Hint: Homework 6: *Shoelaces*, can be done as day 6 classwork, then Homework 7: *Laced Travelers*, can become the homework for day 6.

Teacher Hint: POW 9: *Around the Horn* Be prepared to discuss ambiguous parts to this POW during the week. Make sure students understand what is meant in the Write-up Problem statement. This is the most important aspect of this POW. Very few students successfully answer the question.

### Day 9

Teacher Hint: *Ox Expressions* - Have the students also find an expression that does not make mathematical sense and explain why.

## After Day 9

Worksheet: Included here is an additional worksheet on Ox Expressions. There is a similar supplemental problem in the text called *Classroom Expressions* as well.

Quiz Ox Expressions

## Day 11

Worksheet: Included here is an additional worksheet on Story Sketches. It was taken from the Mathematics Teacher.

## Day 13

Teacher Hint: Classwork and homework could be switched.

Discussion Note on *Out Numbered* - Coffee Graph. Have a class discussion about finding the rule from the graph by making note of the starting point (y intercept), whether graph then increases or decreases, and how the rate of change affects the formula. This will lead to the general form of  $y = a + bx$  or  $y = a - bx$ . This will be useful from here on.

Worksheet: Included here is a worksheet on relating situations to graphs and rules.

## Day 14

Teacher Hint: POW 10: *On Your Own* - Ask students to cut out the ads for apartments and jobs and include them in the write up. Emphasize the importance of speaking to several adults to find out about monthly expenses (utilities, food, clothing, recreation), taxes, take home pay, transportation, insurance (medical, car, renters, life), child care (if applicable).

## Day 15

Teacher Hint: *Previous Travelers* - Do the Beans graph together as a class, have students do the Pounds of gunpowder graph in groups (collect and grade). Assign the Sugar graph for homework in place of Homework 15: *Broken Promises*, which can be covered as a quick classroom discussion.

## Day 17

Teacher Hint: Homework 17: *The Basic Student Budget* Since Bernie's line and Doc's line are very close to parallel, you can introduce the idea of slope here with leading questions such as

- What do you notice about Bernie's line & Doc's line?
- What does this mean in terms of the problem?

Now you can introduce the term "slope" with the meaning "rate of change." For the remainder of the unit, when the situation arises, you can discuss the slope of the line and what rate of change the slope applies to.

## Day 19

Teacher Hint: Homework 19: *What We Needed* can be omitted.

## After Day 19

Quiz: Line of Best Fit and finding the rule from a graph.

## Day 21

Teacher Hint: If you use the following information for beans and sugar to answer the questions on Homework 21: *Biddy Mason*, going over the homework will be easier.

.22 pounds of beans per person per day

.08 pound of sugar per person per day

Remember to select which class family to use when answering the questions.

## Day 24

Teacher Hint: POW 11: *High-Low Differences* - skip or replace (you can also skip Homework 24: *Different High – Lows* because it refers to the POW)

## Day 26

Teacher Hint: Hw 26: *Water for One More* The class needs to decide which class family to use.

## Day 28

Teacher Hint: Skip Homework 28: *California Reflections*.

## Unit: The Pit and the Pendulum

Teacher Hint: You can turn your calculators into stop watches and save some money by using the following program:

```
0 -> N
For (A,1, 10000)
N + 1 -> N
Disp .067N
End
```

To use:

Start = "Enter Key"

Stop = "On Key"

To restart the calculator hit "enter" twice

Note: Be sure to test the timer for 30 seconds against an accurate clock or watch. Students may have to change the ".067" to speed up or slow down the timer.

## Day 2

Teacher Hint: Experiment and class discussions should take one day only. Skip Homework 2: *Close to the Law*, and assign Homework 3: *If I Could Do It Over Again*.

## Redo of Days 6 - 9

### Day 6

Go over Homework 5: *Pulse Analysis*, omit Homework 6: *Return to the Pit*. Go over class discussion of Normal Curve (from day 7), and assign Homework 7: *What's Normal*. (Save POW 13 for tomorrow)

### Day 7

Go over Homework 7: *What's Normal*, go over Normal Curve material in the teacher's manual, read and assign POW13: *Corey Camel*, assign Homework 8: *Flip, Flip*.

### Day 8

Go over Homework 8: *Flip, Flip*, do *A Mini POW about Mini - Camel*, finish Mini POW for homework.

### Day 9

Return to Teacher's Manual, Day 9.

### After Day 12

Worksheet: Included here is a student handout to help students organize their work when calculating the Standard Deviation. It could be useful any time your students need to calculate a Standard Deviation - until they become accustomed to the multisteped calculation.

### After Day 14

Quiz: Standard Deviation Curve with appropriate questions.

### Day 17

Teacher Hint: The experiments covered on days 17 - 18 really require three days. The students should spend entire days experimenting with each variable. **Have students repeat each trial five times using 12 swings of the pendulum.** This will allow you to skip the class work from day 25, *The Period and the Length*.  
(Worksheets included)

**Day 17 A:** Experiment with changing Amplitude - students can use 30 degrees, 40 degrees, and 50 degrees (5 times at each). End class with a discussion of whether the amplitude matters - they won't be sure at this point. Assign Homework 17: *A Picture is Worth a Thousand Words* (you may want to collect this tomorrow).

**Day 17B:** Experiment with changing weight of the bob. Students keep adding a washer and testing the new weight 5 times. End the class with a discussion of whether the weight of the bob matters - they will be fairly sure that bob weight does not matter. Assign Homework 20: *Mehrdad and the Market Analyst*.

**Day 17C:** Experiment with length variations. Assign each group 2 or 3 different lengths to test, making sure some groups are doing lengths of at least 6 or 7 feet. Discuss whether the length of the pendulum matters. You may want to ask the students if they think the angle or amplitude still matters. Assign Hw 18: *Pendulum Conclusions*.

**Day 17D:** Go over Homework 20: *Mehrdad and the Market Analyst*, go over Hw 18:

*Pendulum Conclusions*, assign Supplemental problem *Octane Variation* for homework tonight. Skip POW 15: *Twelve Bags of Gold* (too difficult).

We now return to Day 21 of the Teacher's Manual.

### **Day 21**

Since a peer review of a POW was done earlier in the school year, it can be omitted here.

### **Day 22**

Teacher Hint: *Graphing Free-for-All* can be completed in one day. Assign Homework 22: *Graphs in Search of Equations I* and Homework 23: *Graphs in Search of Equations II* tonight.

### **Day 24**

Teacher Hint: Go over Homework 22 and Homework 23. We suggest that instead of group reports, you might consider a class discussion. Assign Homework 24: *Graphing Summary*.

### **After Day 24**

Quiz Data versus family of curves.

### **Day 25**

Teacher Hint: Do lesson from Day 26, *The Thirty-Foot Prediction* and Homework 25: *Graphs in Search of Equations III*.

### **Day 26**

Teacher Hint: Do 30 foot Pendulum and Homework 27: *Beginning Portfolios*.

Assessment: In class needs:  
Clarification of problem, including pencil graph and curve of best fit.  
Additional problems on the normal curve.  
Take home - we suggest you omit this take home exam.

Quizzes: Standard Deviation Curve with appropriate questions  
Data vs family of curves

### **Unit: Shadows**

This is a great unit to introduce "HOT SHEETS" This is a sheet (brightly colored - neon is great) where students put all important vocabulary, statements, and examples. If you permit the students to use this sheet, in place of their texts during the in class assessments, it gives them the motivation to keep a very complete sheet.

### **Days 2 – 4**

Teacher Hint: Starting on day 2, we suggest that the class spend three days (days 2, 3, and 4) covering the material in the manual through day 6.

## Day 2

Have the class brainstorm variables that might affect the length of a shadow. Then each group picks one of the variables and designs an experiment to test whether this variable affects the length of the shadow. Make sure that there are groups that are testing the variables: height of light source, distance from object of light source, and height of the object. They should decide what materials they will need and either bring them or arrange with the teacher to have them. You might also want to talk to the science department and borrow a ring stand and clamp for each group for day 3. Assign Hw 4: *An N-by-N Window*.

## Day 3

Go over Homework 4: *An N-by-N Window*. Students perform the experiments they designed. Assign Homework 5: *More About Windows*.

## Day 4

Go over Hw 5: *More About Windows*. Have students spend about ten minutes trying to come up with a formula relating their data to the length of shadow. Lead students to understand the relevance of the 3 important variables and that coming up with a formula relating all 3 variables to the length of a shadow is a complex problem. Suggest that we might need to explore some other areas of mathematics to help us answer this question. Assign Homework 6: *Draw the Same Shape*.

We now return to day 7 of the curriculum.

## After Day 10

Worksheet: Reinforcing Homework 10: *Similar Problems* ( similar polygons)

Quiz: Similar Polygons

## Day 11

Worksheet: Replacing Homework 11: *From Top to Bottom* (give 2 or 3 similar figures - have students find and compare appropriate segment ratio - End with question tying together all these ratios)

## Day 12

Teacher Hint: *What's Possible?* - It might be helpful for part 2 to hand out pre cut parts of cocktail straws to assist students to figure out which combinations are possible.

Worksheet: Worksheet to reinforce proportions on day 13. Homework will hit this subject again.

## Day 14

Teacher Hint: POW 18: *Trying Triangles*, is a more difficult POW. You might consider this POW as extra credit for the more motivated students.

## Day 15

Teacher Hint: *More About Angles* - Make copies of the diagrams and number the angles to hand out to the students to work from.

Teacher Hint: Homework 15: *Inside Similarity* give students a copy of the sheet of triangles (included) to experiment with.

### After Day 15

Worksheet after *More About Angles* that uses what was covered.

Quiz: Parallel lines crossed by a transversal - vocabulary and identification

### Day 16

Quiz: Proof Measures of exterior angles = sum of 2 remote interior angles  
Alternate exterior angles (of parallel lines cut by a transversal) are =.

### Day 17

Teacher Hint: *Bouncing Light* - Instead of bouncing a beam on a table, use the blackboard instead of the table. An alternate way of doing this exercise is using a laser beam.

Teacher Hint: Homework 17: *Now You See It, Now You Don't* - make a handout to assist with the homework

### Day 19

Teacher Hint: Quiz on day 19 on applying proportions.

Teacher Hint: POW 19: *Pool Pockets* If you don't have time to do this one now, remember this POW as a replacement POW in the future.

### Day 21

Worksheet to replace Homework 21: *The Sun Shadow Problem* (on similar triangles)

Worksheet: Included here is a worksheet on right triangles and trig.

Worksheet: Included here is a worksheet that uses trig to solve word problems.

Assessment

Combine in class and take home assessments as the in class assessment.

Quizzes:

Similar polygons

Proportions

Parallel lines crossed by transversal -vocabulary & identification

Proof Quiz (16)

Measure of exterior angle = sum of remote 2 interior

Alternating interior angles (of parallel lines cut by transversal) are =.

## SUGGESTIONS FOR STUDENT PORTFOLIOS

The instructions to the student are in the text at the end of each unit in the form of the final homework assignment of the unit. Page 3 of these portfolio suggestions contains a copy of the *Selecting Portfolios* assignment from the *Patterns* unit, which is representative of all portfolio assignments throughout the four year course of study. We suggest that you replace the portfolio instructions in the book with these instructions.

We further suggest that you go over these instructions and the grading criteria for portfolios (page 2) at the beginning of the *Patterns* unit, so students can be working toward portfolio selection as they go along. To this end

- The students will write a brief note (a few words or a sentence), either at the top of their paper or in the form of small Post-it notes, to clarify their feelings about each paper or project as it is completed or when the class finishes discussing it.

Note: Since students constantly have to refer to previous work, don't have them physically put items in their portfolio yet.

- At the end of each unit before the assessment and before the portfolio cover letter is written, review the unit and the mathematics in the unit with the class so the students can reflect on the work they did in that unit.
- When assigning the *Selecting Portfolios* homework, emphasize the selection of items in the cover letter (see the marking suggestion on page 2). Also, if the students used Post-it notes for comments, have students leave their Post-it notes on the papers.
- In the *Patterns* unit, before students turn in their finished portfolio, review a sample student portfolio with the class. Then have students do a peer review of portfolios.



## Teacher Portfolio Rubric

Explain the grading rubric for portfolios. This should be done when the first unit is assigned and reviewed when the *Selecting Portfolios* homework is assigned. This rubric is a weighted completion rubric, since the four selections either will not be graded or have already been graded and the cover letter is intended to elicit opinion. Each item has an assigned weight. The total of all points is 50. The Assessments may have to be added to the portfolio later, after they are graded and returned

Cover Page	2	
Staple or Clip Portfolio	1	
Favorite POW	1	
Important HW/Clwk	1	
Important HW/Clwk	1	
Other Favorite Item	1	
In-class Assessment	2	
Take-home Assessment	2	
Cover Letter		
Description of unit	3	
Topics Studied	4	
What I Learned	4	
Why Items Chosen	16	(4 for each)
Progress		
Working Together	2	
Presenting	2	
Writing	2	
Need to Work On		
Math	2	
Process	2	
Other thoughts	2	
<hr/>		
TOTAL POINTS	50	

End by having a portfolio conference with any student whose portfolio is deficient.

At the end of each unit of work, you will be asked to choose certain items to place in a Portfolio that will contain your work for all four years. You will also be asked to write a cover letter. Your Portfolio will be graded using the following grading system. Each item has an assigned weight. The total of all points is 50.

Cover Page	2	
Staple or Clip Portfolio	1	
Favorite POW	1	
Important HW/Clwk	1	
Important HW/Clwk	1	
Other Favorite Item	1	
In-class Assessment	2	
Take-home Assessment	2	
<b>Cover Letter</b>		
Description of unit	3	
Topics Studied	4	
What I Learned	4	
Why Items Chosen	16	(4 for each)
Progress		
Working Together	2	
Presenting	2	
Writing	2	
Need to Work On		
Math	2	
Process	2	
Other thoughts	2	
<hr/>		
<b>TOTAL POINTS</b>	<b>50</b>	

At the end of each unit of work, you will be asked to choose certain items to place in a Portfolio that will contain your work for all four years. You will also be asked to write a cover letter. Your Portfolio will be graded using the following grading system. Each item has an assigned weight. The total of all points is 50.

These are the weights:

Cover Page	2
Staple or Clip Portfolio	1
Favorite POW	1
Important HW/Clwk	1
Important HW/Clwk	1
Other Favorite Item	1
In-class Assessment <sup>2</sup>	
Take-home Assessment	2
<b>Cover Letter</b>	
Description of unit	3
Topics Studied	4
What I Learned	4
Why Items Chosen	16 (4 for each)
Progress	
Working Together	2
Presenting	2
Writing	2
Need to Work On	
Math	2
Process	2
Other thoughts	2
<b>TOTAL POINTS</b>	<b>50</b>

This is a copy of the grading form that will be used.

**Portfolio Enclosures**

Cover Page	_____
Staple or Clip Portfolio	_____
Favorite POW	_____
Important HW/Clwk	_____
Important HW/Clwk	_____
Other Favorite Item	_____
In-class Assessment	_____
Take-home Assessment	_____

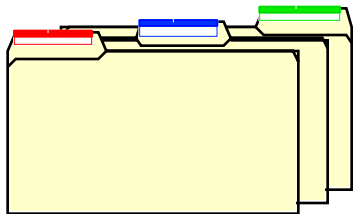
**Cover Letter**

Description of unit	_____
Topics Studied	_____
What I Learned	_____
Why Items Chosen	_____
Progress	
Working Together	_____
Presenting	_____
Writing	_____
Need to Work On	
Math	_____
Process	_____
Other thoughts	_____

**TOTAL POINTS**

\_\_\_\_\_

## BUILDING YOUR PORTFOLIO



Your Portfolio for each unit has several parts.

- Cover Sheet
- Cover Letter
- A Selection of Papers from the unit
- Your Quizzes, In-Class, and Take-Home Assessments

### Selecting Papers for Your Portfolio

Review all your papers from the unit and then choose the following:

- Favorite Problem of the Week  
Make a selection of one of the unit POWs which you feel explained your thought processes well, or used several different strategies, etc. Write FAVORITE POW at the top of this Problem of the Week.
- Important Homeworks / Classworks  
Choose two activities or homeworks that you feel were important to the development of mathematical ideas in this unit. Write IMPORTANT HOMEWORK or IMPORTANT CLASSWORK at the top of each item.
- Another Favorite Selection (POW, Homework or Classwork). Write ANOTHER FAVORITE at the top of this one.
- Quizzes, In-Class and Take-Home Assessment

### Cover Letter

Your Cover Letter should answer the following questions:

- What was the unit about?
- What mathematical topics were studied?
- What did you learn during this unit?
- Why did you choose each of the items described above?
- How do you feel you have progressed in the areas of:
  - Working together with others?
  - Presenting to the class?
  - Writing about and describing your thought processes?
- What do you feel you need to work on in the following areas:
  - Mathematical topics?
  - Other classroom processes?
- Are there any other thoughts you would like to share with the reader?

<b>Portfolio Enclosures</b>	
Cover Page	_____
Staple or Clip Portfolio	_____
Favorite POW	_____
Important HW/Clwk	_____
Important HW/Clwk	_____
Other Favorite Item	_____
In-class Assessment	_____
Take-home Assessment	_____
<b>Cover Letter</b>	
Description of unit	_____
Topics Studied	_____
What I Learned	_____
Why Items Chosen	_____
Progress	_____
Working Together	_____
Presenting	_____
Writing	_____
Need to Work On	_____
Math	_____
Process	_____
Other thoughts	_____
<b>TOTAL POINTS</b>	_____

<b>Portfolio Enclosures</b>	
Cover Page	_____
Staple or Clip Portfolio	_____
Favorite POW	_____
Important HW/Clwk	_____
Important HW/Clwk	_____
Other Favorite Item	_____
In-class Assessment	_____
Take-home Assessment	_____
<b>Cover Letter</b>	
Description of unit	_____
Topics Studied	_____
What I Learned	_____
Why Items Chosen	_____
Progress	_____
Working Together	_____
Presenting	_____
Writing	_____
Need to Work On	_____
Math	_____
Process	_____
Other thoughts	_____
<b>TOTAL POINTS</b>	_____

<b>Portfolio Enclosures</b>	
Cover Page	_____
Staple or Clip Portfolio	_____
Favorite POW	_____
Important HW/Clwk	_____
Important HW/Clwk	_____
Other Favorite Item	_____
In-class Assessment	_____
Take-home Assessment	_____
<b>Cover Letter</b>	
Description of unit	_____
Topics Studied	_____
What I Learned	_____
Why Items Chosen	_____
Progress	_____
Working Together	_____
Presenting	_____
Writing	_____
Need to Work On	_____
Math	_____
Process	_____
Other thoughts	_____
<b>TOTAL POINTS</b>	_____

<b>Portfolio Enclosures</b>	
Cover Page	_____
Staple or Clip Portfolio	_____
Favorite POW	_____
Important HW/Clwk	_____
Important HW/Clwk	_____
Other Favorite Item	_____
In-class Assessment	_____
Take-home Assessment	_____
<b>Cover Letter</b>	
Description of unit	_____
Topics Studied	_____
What I Learned	_____
Why Items Chosen	_____
Progress	_____
Working Together	_____
Presenting	_____
Writing	_____
Need to Work On	_____
Math	_____
Process	_____
Other thoughts	_____
<b>TOTAL POINTS</b>	_____

## Point Rubric for Assessing the Problem of the Week

1. *Problem statement (10 points)*
  - 3 Copied or misstated
  - 6 Incomplete
  - 10 Paraphrased, complete
  
2. *Process (15 points)*
  - 3 Unrelated to the problem
  - 6 Incomplete - started but only one step or trial shown
  - 9 All trials mentioned - specifics omitted
  - 12 Minimum descriptions or trials, but drawings, tables included
  - 12 Complete descriptions, but drawings, tables omitted (if applicable)
  - 15 Complete, w/tables, sketches
  
3. *Solution (15 points)*
  - 2 Wrong answer not defended
  - 4 Correct answer not defended
  - 6 Wrong answer, some support
  - 8 Correct - because it worked
  - 12 Wrong, but well supported
  - 12 Correct, defended with mathematical reasoning, has errors
  - 15 Correct, well supported
  
4. *Extensions (5 points)*
  - 2 Unrelated to problem
  - 2 Same problem, but different variable or name
  - 4 Related, but not similar
  - 4 Similar situation - task (what to find) not clearly stated
  - 5 Similar type of problem
  
5. *Evaluation (5 points)*
  - 1 Unrelated comments
  - 3 Stated without reason
  - 5 Evaluation and reason

# *Patterns* Notebook Check

Each question is 5 points. Total points: 25

1. In Homework 2: *Who's Who*, what grade was Felicia in? \_\_\_\_\_
2. Spell the name of the Greek letter  $\Sigma$ . \_\_\_\_\_
3. In Homework 11: *Add It Up*, write the answer to question 2. \_\_\_\_\_
4. What is the name of Homework 6? \_\_\_\_\_
5. In Homework 10: *Pulling Out Rules*, what is the rule for problem 1b?  
\_\_\_\_\_  
\_\_\_\_\_