

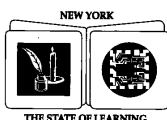


# Career Development & Occupational Studies

## PART II.1

Sea Shell Graph .....	2
Magnet Mania .....	12

**NOTE:** This document is a work in progress. Parts II and III, in particular, are in need of further development, and we invite the submission of additional learning experiences and local performance tasks for these sections. Inquiries regarding submission of materials should be directed to: The Career Development & Occupational Studies Resource Guide, Room 681 EBA, New York State Education Department, Albany, NY 12234 (tel. 518-474-5922).





# Sea Shell Graph

**CDOS**

▲ data and decision making

**3a**

▲ how a system operates

**Materials**

Pre-made sea shell graph, 36 inches wide (X axis) by 24 inches (Y axis)

Large write-on, wipe-off graph

8 1/2 inch by 11 inch graph paper

Five different color post-it note packages showing specific seashell pictures

Oak-tag paper

Sand table

Two wooden boards

Five varieties of shells

Markers

Wooden blocks, unifix cubes, counters

Problem solving journal

Cassette tape recorder

Clip board

*Your choice of language makes complex concepts and tasks accessible to very young learners. As always, observing in your room, I was impressed with the spontaneous vocabulary. It's not every first grader who can use the word homophone appropriately.*

Principal

Melissa M. Dixon

Poughkeepsie City School District

Morse Young Child Magnet School

101 Mansion Street

Poughkeepsie, NY 12601

(914) 451-4650



**Grades K-1**

Allowing for peer partners to participate together in creating the large graph supports research that has shown that peers of the same age (or different), when working towards a common goal, strengthen the learning process for each other.

Design a 20 inch by 20 inch write-on, wipe-off graph with 4 inch squares which includes:

- ✓ One large velcro strip adhered to the top of the graph which will hold the student-labeled graph title.
- ✓ Eleven velcro tabs located on the horizontal axis which will hold number cards 0 through 10.
- ✓ Eleven velcro tabs located on the vertical axis which will hold student-drawn or written category names.

*This allows the student to adhere, rather than write, the title, information categories, and number cards. The use of temporary written spelling or illustration supports developmental process learning.*

---

# Step-by-Step Procedure

## Teacher

### 1. LESSON INTRODUCTION: Motivation (Anticipatory set)

- Build up excitement for learning process by informing students of a new “language gift” they will be offered to help them organize information and make connections between prior experiences and new experiences. This process will reveal a meaningful product that will be useful within and outside of school.
- Review prior knowledge of the ocean environment topic by eliciting student learning experiences that support the language areas of reading, writing, listening, and speaking.
- Lead students to recall the object found on the seashore that can mimic the sound of the sea.

### 2. EXPLORATION: Visualization

- Guide students to visualize an imaginary journey to the seashore to explore, collect, and identify various familiar seashells.

### 3. DISCOVERY :

- Upon “returning” to the classroom, a seashell graph is displayed indicating the names of the “gathered” shells.
- Indicate the title of the graph, *Sea Shell Graph*, and emphasize the first letter capitalization and the term *graph*.
- Direct students to discuss prior exposure to graphs.
- Indicate the usefulness of the graph as a tool to organize and show the total number of shells found on the imaginary seashore.
- Refer to the five seashell names (conch, clam, turban, murex, scallop) organized top to bottom on the vertical axis, and the numbers 1 through 10 organized left to right on the horizontal axis.
- Offer students the opportunity to demonstrate an understanding of horizontal and vertical by positioning their bodies to show the directions and by positioning two wooden boards to show the same directions.
- Bring student attention back to the graph and the seashell names. Inform students that these five categories of shells can be found with labels within the classroom sand table.
- Prior to lesson, organize a separate table with five pads of colorful post-it notes. Place a shell name label above each colorful pad.
- Demonstrate the graphing process:
  - Locate, touch, and read the first shell category at the bottom of the graph.
  - Proceed to sand table, locate shell and corresponding name, and touch and count aloud.
  - Move to separate table, locate the shell name, and remove appropriate number of post-it notes from the corresponding pile that will match the number of shell objects counted previously.
  - On graph, adhere post-it note to square next to shell name. Point to post-it notes and count.
  - Choose students to follow the graphing process.
  - Reverse teaching role. Allow student volunteers to guide classmates in completing the graphing activity while teacher joins group of students.
  - Encourage students to check for accuracy upon each category graphing.

*I wanted to experience  
a little more.*

Student

#### 4. CLOSURE:

Review the accurate graphing procedures. Lead students to offer reasons why graphing is a useful organization/management tool that can be used in the classroom and in the career workplace.

#### 5. FOLLOW-UP:

- Provide students with independent or peer partner graphing opportunities to apply newly acquired knowledge.
- Show possible classroom items to graph: unifix cubes, wooden blocks, plastic counters, etc.
- Explain and demonstrate:
  - problem solving journal expectations.
  - the use of *My Graph Checklist* and *My Graph Reflection*.
- Observe student learning attitude and initiation of tasks.
- Offer reinforcement, support, and guidance in completion of tasks.
- Attach Post-It-Note comments to work samples.
- Share *Criteria Assessment Checklist* with students.

### My Graph Checklist

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Have I included the following items on my graph?

#### Arrangement and Accuracy

- I used a ruler on my graph to show vertical and horizontal
- I have a title for my graph which shows appropriate capitalization
- I have labeled the information categories
- I wrote numbers in order beginning with 0
- I colored in the exact number of squares to show how many objects or ideas I counted

#### Problem-Solving Journal Language

- My journal entry uses language that is clear and makes sense
- My language tells about my graph findings
- My entry shows learning I discovered
- My entry uses problem solving language such as more, less, (most and least), addition, how many, counted, etc.
- My entry offers a personal learning lesson
- I discuss the usefulness of a graph

Comments:

## My Graph Reflection

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Directions: Using the rating key, show your feelings about the statement by writing the number in the box.

### Rating Key

4. Always      3. Most of the time      2. Sometimes      1. A little      0. Never

### Attitude

I wanted to do this graphing activity  
I am happy with my graph  
Graphs can be helpful to me  
I will use graphs to solve some problems  
I enjoy helping others make graphs  
Graphing is easy  
If graphing becomes difficult, I'll keep trying

### Motivation

I want to make more graphs  
I will tell other people about graphs  
I will share my graphs with my family  
I will try to find graphs other than in school

### Looking Ahead

Other things to graph and why:

My next graphing activity will be

*To enrich the delivery of the lesson and to reinforce student's daily exposure to advanced language, I used language terms such as connections, relationships, process, product, visualize, organize, category, adhere, and proceed. My philosophy of advanced language usage derives from the belief that exposing young children to sophisticated levels of language encourages them to develop a treasury of rich vocabulary at an early age. This will allow them to participate in more meaningful discussions and conversations.*

Teacher

*The application of this assessment tool to the follow-up activity will guide the teacher in the prescription of future graph lessons, language lessons, and/or mathematical concept lessons.*

### **Criteria Assessment Checklist**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

#### Learner Attitude:

- Showed enthusiasm and willingness to initiate follow-up activity
- Showed motivation (if time allowed) to create more than one graph during the follow-up or thereafter.
- Asked for help when needed.
- Completed My Graph Reflection

#### Graphing Arrangement and Accuracy:

- Demonstrated use of My Graph Checklist as a guide to graphing.
- Showed title with appropriate capitalization.
- Showed straight vertical, and horizontal axes on the student- created 8 ½ inch by 11 inch graph.
- Showed information categories organized on an axis.
- Showed appropriate counting order beginning with 0 on the other axis.
- Discovered graphing flexibility in organizing information and numbers on either the vertical or horizontal axis.
- Number of squares colored accurately matched the number of objects or ideas counted.

#### Communication of Findings:

- Language delivered a clear, concise, appropriate and meaningful message to the reader and the listener.
- Ideas supported accurate graph findings, discoveries, and mathematical concepts
- Offered a personal learning lesson to the reader and listener.
- Discussed the usefulness of the graph.

#### Future Learning Goals:

#### Comments:

## Student

### 1. LESSON INTRODUCTION: Motivation (Anticipatory set)

- Gather in a learning position facing the teacher and the instructional area.
- Listen to anticipatory set.
- Recall previous reading, writing, listening, and speaking learning experiences involving the ocean and seashells.

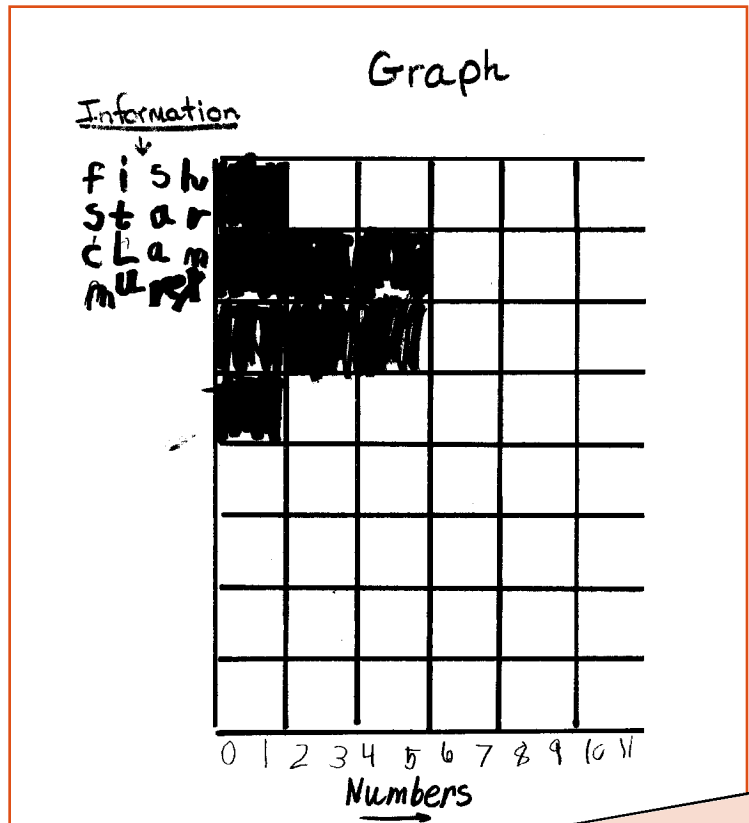
### 2. EXPLORATION: Visualization

- Take an imaginary, closed-eye journey to a beach.
- “Collect” familiar seashells .

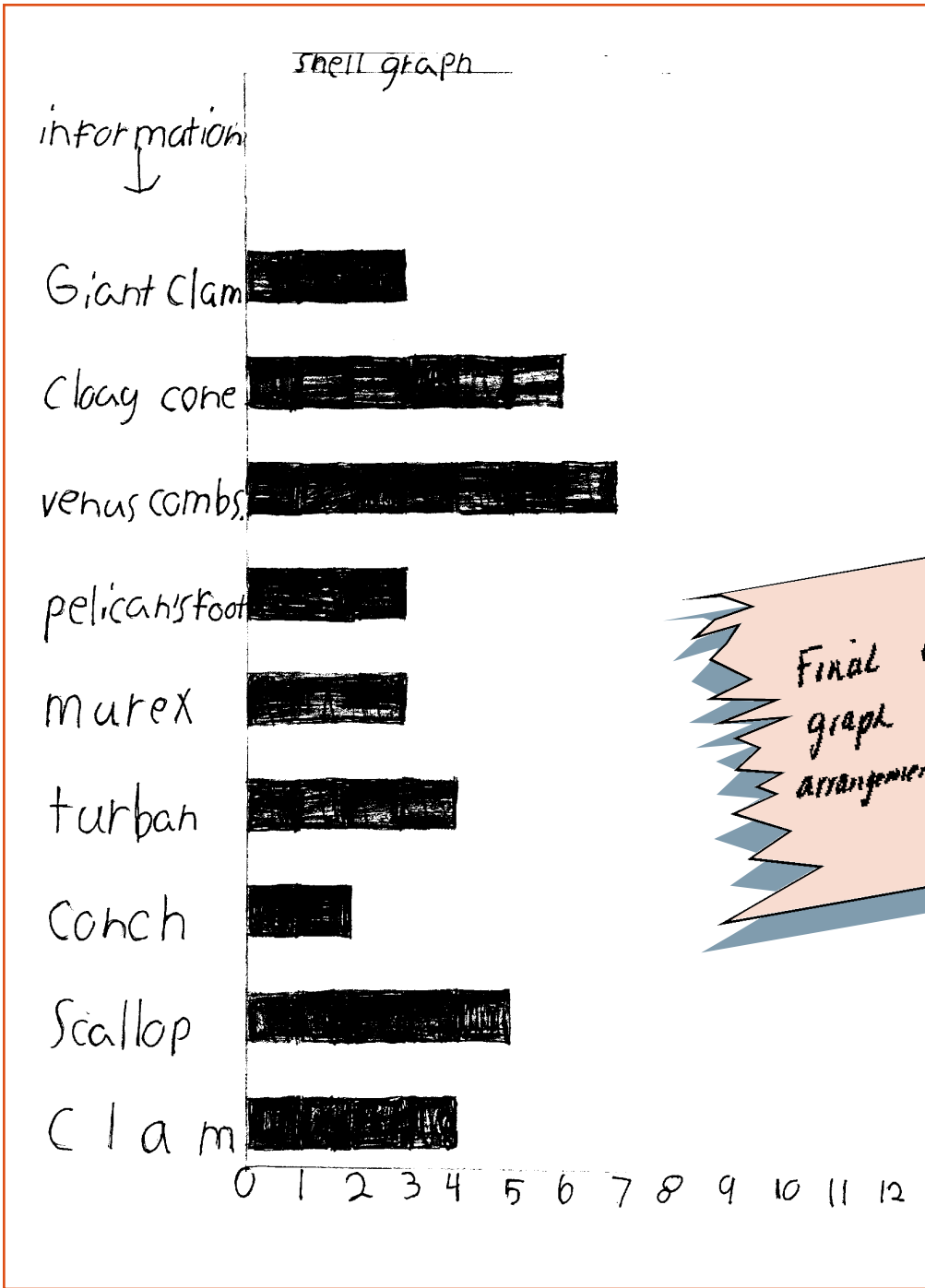
### 3. DISCOVERY:

Open eyes and discover the *Sea Shell Graph* showing the names of the shells they gathered on their trip.

- Discuss prior exposure to graphs, if any.
- Recall the previously learned directions top to bottom and left to right, by reading the shell names on the vertical axis and identifying numbers 0 through 10 on the horizontal axis.
- Students use body language to demonstrate spatial concepts of vertical and horizontal: students stand to show vertical and then lie on the floor to show horizontal. Further, student volunteers position two wooden boards to show vertical and horizontal.
- Refocus attention on the graph and read the first shell category on the bottom.
- Discover this shell and the others organized into five groups and labeled within the sand table.
- Observe and listen as teacher demonstrates the graphing process using the post-it notes.
- Student volunteer locates second category of shells on the graph, reads the name, finds the shell on the sand table, and orally counts and touches the total number of identified shells in the group.
- Move to the left of the sand table, locate colorful post-it note pad of “shells,” and count out the corresponding number of shell papers that match the number of shells counted in the sand table.
- Adhere the post-it notes on the graph next to the shell name and count the number of covered squares.
- Student volunteers assume the teacher-guidance role and sit in the seat next to the easel.
- Proceed with the graphing exercise and guide peer learners.
- Classmates check for understanding by showing thumbs-up when graphing accuracy is demonstrated.



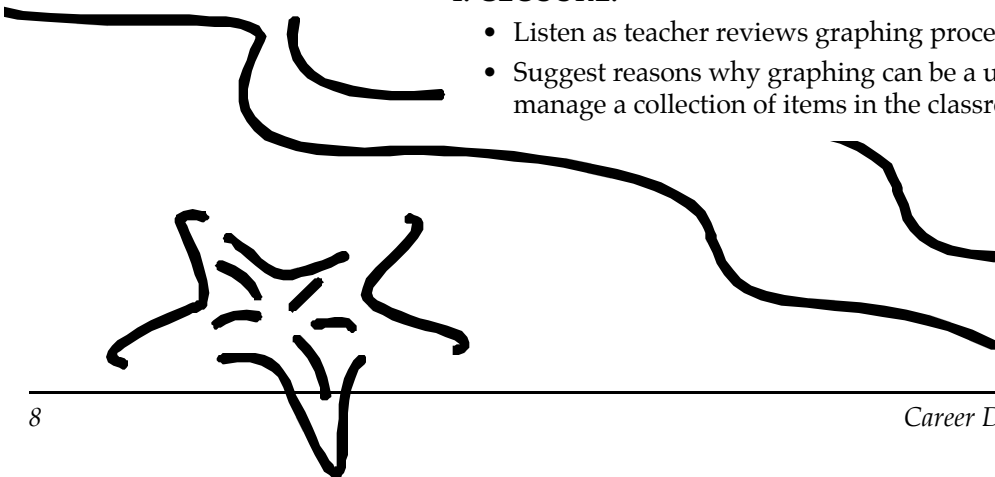
Draft #1 Shows information categories organized from the top with vacancies at the bottom.



Final copy of graph shows exceptional arrangement of categories.

**4. CLOSURE:**

- Listen as teacher reviews graphing process.
- Suggest reasons why graphing can be a useful tool to show, organize, and manage a collection of items in the classroom or in the workforce setting.



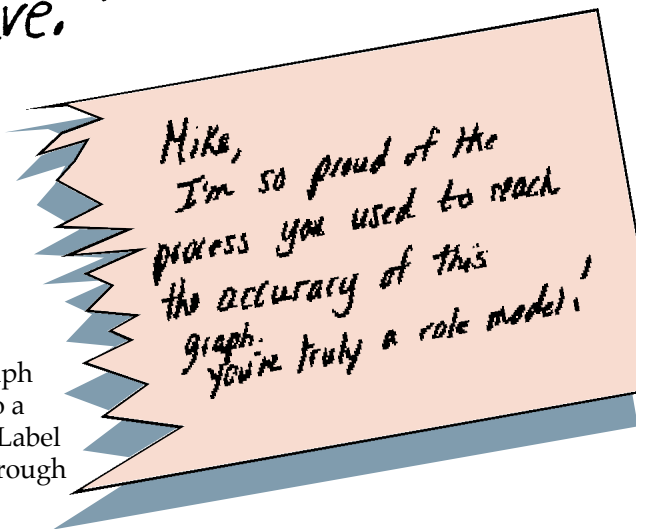


Michael  
 I figured out from  
 my shell graph that  
 you can determine  
 how many shells  
 there are. I also figured  
 out that you can  
 figure out how many  
 different shells you have  
 and how many shells  
 you don't have.

#### 5. FOLLOW-UP:

##### A.

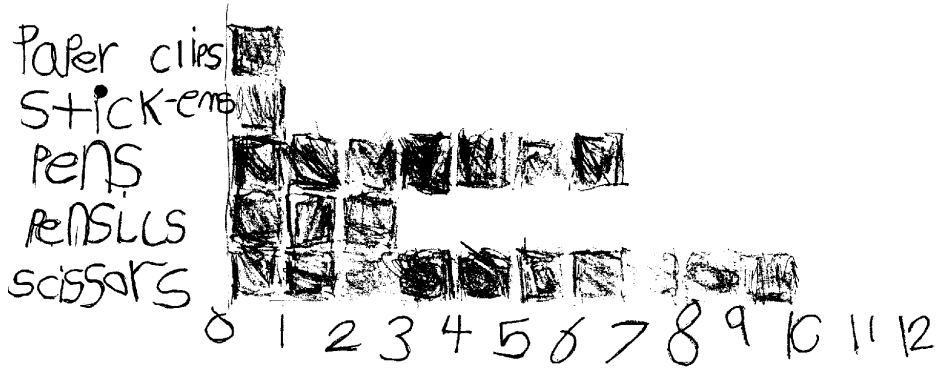
- Create individual graphs of items found in the classroom.
- Refer to *My Graph Checklist* as a guide in constructing a graph.
- Select one of three task completions:
  - 1) Create a graph by obtaining 8 1/2 inch by 11 inch graph paper, ruler, and a writing tool. Fasten graph paper to a clipboard. Draw graph axes using a ruler as a guide. Label graph title, information categories, and numbers 0 through 10. Move freely around the room to locate and count items. To graph, color the appropriate number of squares on the graph paper to show the number of objects counted.
  - 2) Use 8 1/2 inch by 11 inch graph paper with pre-drawn horizontal and vertical axes. Continue with aforementioned procedure without the use of the ruler.
  - 3) Use write-on, wipe-off 20 inch by 20 inch graph displayed on an easel. Use temporary written spelling or draw on an oak-tag card to indicate the title of the graph and the information categories. Attach these oak-tag velcro cards to the graph. In addition, attach oak-tag number cards 0-10 on the graph. Use wipe-off markers to color the squares showing the number of objects counted.



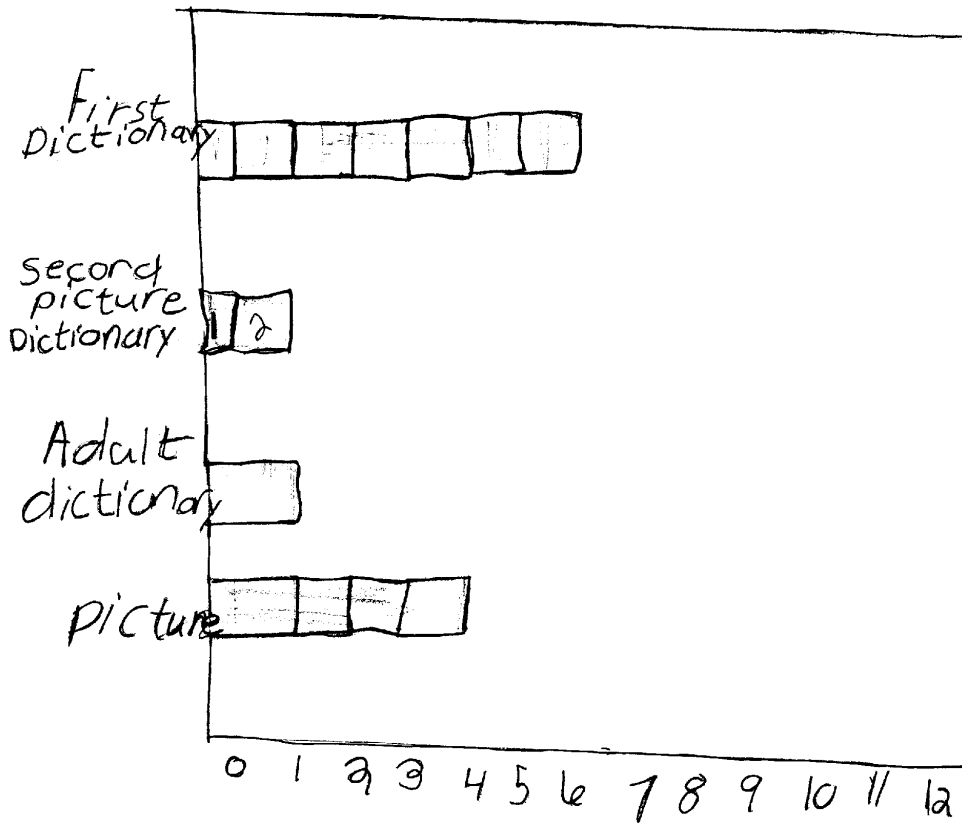
##### B.

- Use a problem solving journal or cassette recorder to discuss the facts and data collected on the practice graphs.
- Use *My Graph Checklist* as a guide in developing the problem-solving journal entry.
- Explain graph findings.
- List learning discoveries based upon the graphing experience.
- Share and compare interpretations with classmates. Complete *My Graph Reflection*.

# MS-05 Bucket



# Dictionary graph



---

## ASSESSMENT



The assessment techniques provide meaningful feedback for the teacher and student in the following ways:

- 1) The teacher may conclude that the teaching implementation should be modified or maintained.
- 2) The student may require remediation in specific learning areas prior to proceeding with a new graphing concept lesson.
- 3) The student is prepared to receive a new level of graphing knowledge.
- 4) The student determines that a graphing conference is needed based upon written comments received from the teacher.

The initial determination of success is observed during the lesson implementation process. The level of student confidence with the new learning is shown through the willingness of the student to participate in the graphing process and discussion.

Further assessment data is gathered by the teacher through the observation of the student's learning attitude towards, and initiation of, the follow-up graphing activity.

An additional learner attitude indicator is reflected in *My Graph Reflection*. This piece offers the evaluator authentic, insightful, written communication of student feelings and thoughts.

*My Graph Checklist* is designed to assist students in the step-by-step process of graph design to the final product, including the interpretation of data. This is an additional assessment tool used to determine the student's internalization of the graphing process.

Further success is noted in the design components of the follow-up graph: placement of vertical and horizontal axes; location and arrangement of numbers, categories, and graph title; and the accurate coloring of squares to show the number of objects counted.

*Problem solving journals* will show the student's ability to use oral and/or written language effectively as a communication technique to discover, interpret, and express the need and purpose for graphs.

---

## REFLECTION

*An organized person is an organized thinker, learner, and worker.*

*The Sea Shell Graph* is a multi-dimensional instructional strategy that successfully balances three Universal Foundation Skills. The students recognized a need to manage a collection of shells they "gathered" on a learning journey. Discovering a visual skill to accomplish this task led to the acquisition of a useful organizational device. Using the four basic communication processes of reading, writing, listening, and speaking, students received and expressed new and prior knowledge in a meaningful, systemic manner.

Future lessons will focus on the extension of graph usage to the career workplace. Some student journal entries showed evidence of this connection already. The effective use of graphs to solve daily work problems will be explored. Student-parent interviews will serve as the foundation for the discussion lesson.

**REFLECTION:**  
*REFLECTION:*

# Magnet Mania



**CDOS**

**2**

- ▲ knowledge and ability to use skill
- ▲ solve problems

**CDOS**

**3a**

- ▲ obtain data
- ▲ attributes needed to complete task
- ▲ interpersonal skills/leadership
- ▲ how a system operates

The Learning Center teacher offered us the use of a “Badge-A-Matic 11” button making machine. This model is rather expensive, but simpler models are available at reasonable costs. Cutting the circles by hand is certainly possible, but must be absolutely exact or they might jam the machine. We ordered magnetic back sets and background paper with perforated circles for the number of magnets (250) we wanted to make. These materials were ordered from the *Badge-A-Minit Catalogue*.

Badge A Minit  
 Box 800  
 La Salle, IL 61301  
 1-800-223-4103  
 Fax 1-815-883-9696

*We are learning a lot of things we hadn't expected.*

Teacher

*Wow! We really did a nice job on this.*

Student

Diana J. Picolla

Laurens Central School

64 Main Street

Laurens, NY 13796

(607) 432-2050

FAX (607) 432-4388

Grade 6

Students need to understand how to access clip art from a computer, measure accurately using the metric system, correctly make changes, graph data, and do mental calculations involving addition and subtraction of money.



## Guided Class Discussion:

- on the meaning of excellence, and its importance in producing a product for sale. Students then write a short paragraph about what excellence means to them.
- about cooperative learning in a classroom activity. Students develop a "T" chart of what a cooperative learning activity would look and sound like.
- about the meanings of the following terms: marketing a product, assembly line, profit and loss, and supply and demand. (We invited the high school social studies teacher in to do this with the class).

SAMPLE "T" CHART FOR COOPERATING IN A GROUP	
COOPERATION	
LOOKS LIKE	SOUNDS LIKE
Face to Face	What do you think?
Sharing Materials	That's a good idea!
Taking Turns	Do you need help?
Quiet listening	It's your turn

**marketing:** Students research a variety of advertisements and categorize them into groups according to marketing strategy utilized (e.g., flattery, join the crowd, scientific claims). Students then design and draw posters and displays to promote the sale of the magnets. They also write a daily morning announcement and create a flyer to send home to parents advertising the sale.

**assembly line:** Students participate in each phase of the magnet production: draw and design, color, cut and assembly, apply magnet, quality control, and sales.

**profit and loss:** Students determine the "start-up" cost of the project, and then determine what price must be charged to result in the desired profit. Students consider factors such as possible damage, practice pieces, and unacceptable quality. They also keep an account of daily sales in order to tally and compare profit for each day.

### **supply and demand:**

Students submit their magnet designs to a vote by all students in the class. The designs receiving the most votes will be produced. As sales progress, students determine which designs need to be produced in greater numbers. Students develop a sales graph or chart to record sales data.



*I can't believe you kids actually designed and made these. Great Job!*

Parent





# ASSESSMENT

1. Copy of the Economic Terms Quiz.
2. Economic Terms Quiz Rubric.
3. Teacher Observation Rubric.
4. Magnet Pricing Sheet.
5. Magnet Mania Evaluation.
6. Samples of the Finished Product—Three Magnets.

## RUBRIC FOR WRITTEN QUIZ ON ECONOMIC TERMS

### EMERGING (1)

- addresses most terms but demonstrates minimal understanding
- makes little or no connection to class activities

### ADEQUATE (2)

- demonstrates adequate understanding of all basic terms
- makes occasional connection to class activities
- includes examples although may be vague

### PROFICIENT (3)

- demonstrates considerable understanding of all terms
- makes strong connections to class activities
- supports explanation with specific examples

The *Economic Terms Quiz* turned out to be the only assessment tool formally graded. The *Teacher Observation Form* which we had planned to use as a formal assessment, turned out to be unnecessary as all students responded in a very positive manner. The *Excellence* paragraphs were written and then used as a basis for class discussion. No attempt was made to correct or grade them, as the development of the concept of “excellence in business” was the primary focus. The *Pricing Sheet* also was the basis for class discussion. The math processes were determined as a result of the discussion, and then done together as a group. Assessment was more of a natural, on-going daily process through peer feedback, self-reflection, and group reflection. For example, the students created the criteria for the magnets as a result of the discussion of the *Excellence* paragraphs. The students then voluntarily applied those criteria to their designs. Each student made the final decision as to when his or her design was ready for production. Students accepted comments and positive criticism from peers without negative reactions, because they had learned that it was “just business.” At the end of each day, the entire group discussed what went well, what still needed to be done, and what did not go well.

## MAGNET MANIA EVALUATION

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

Please answer all of the following questions in complete sentences.

- 1.) What did you enjoy the most about this project?
  
  
  
  
  
  
  
  
  
  
- 2.) What did you enjoy the least about this project?
  
  
  
  
  
  
  
  
  
  
- 3.) Describe two IMPORTANT ideas that you learned during this project.
  
  
  
  
  
  
  
  
  
  
- 4.) If you could change anything about this project for the next time, what change would you suggest? Why?

## Teacher Observation of Student Behaviors

### Group Behaviors:

**Never      Usually      Always**

1. Student demonstrates cooperative behavior in a team effort.

---

2. Student actively participates in class and decision-making discussions.

---

3. Student clearly expresses ideas and opinions within the group.

---

4. Student participates successfully in all phases of the "assembly line" process of production.

---

### Individual Behaviors:

1. Student completes work on time.

---

2. Student correctly designs a magnet to the correct size.

---

3. Student creates posters, slogans or other advertising material which are clear, appropriate, and use marketing strategies.

---

4. Student correctly makes change during sales.

---

5. Student correctly applies basic bookkeeping skills by tracking and comparing daily sales.

---



NAME: Allison

1. In complete sentences, define each of the following terms and tell how each relates to our magnet project.

a) Assembly line: Is when someone is in a line and each person does something.

Example: Leslie hands Mrs. Rollins the bottom part then, Nicole gives Mrs. Rollins the top part, the paper, and the plastic. I push the button and then Eritia takes the button and puts a magnet on it and we have a locker magnet.

b) Profit and loss: A profit is money left over. Example: I buy materials for \$5 and then I make \$10 and my profit is \$5.

Loss is when you loss money. Example: You buy materials for \$6 and you only make \$3, that's a loss.

c) Supply and demand: Supply is the amount that you have of your product.

Demand is when people want more of one thing and you have to make more. Example: I made two music notes so we had to make more to meet the demand.

2. Name two marketing strategies and give examples.

Two marketing strategies are radio and T.V. We used the announcements (P.A. system) and posters.

---

## REFLECTION

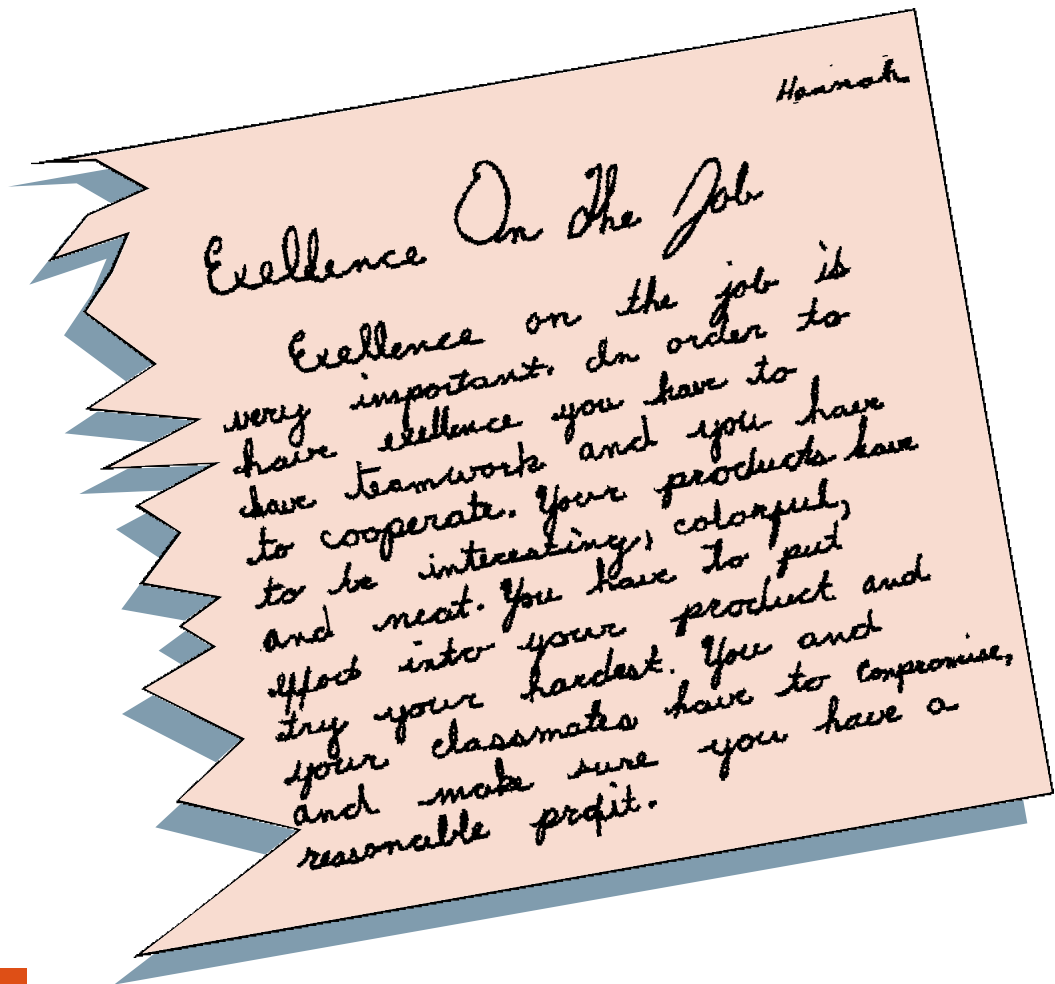
*Magnet Mania* is an exemplary learning experience for the following reasons:

1. It incorporates Learning Standards from several disciplines.
2. It lends itself to a collaborative effort across disciplines involving the classroom teachers, art teacher, learning center teacher, social studies teacher, and several program aides.
3. It is an authentic performance task in that a) it requires students to make use of knowledge from several disciplines; b) it requires students to be actively involved in the task and decision-making; c) the content required for the task is familiar to the students, but the task is new; d) the task is matched developmentally to the students; e) the task includes some open-ended solutions; f) the task takes time for the students to gain new learning experiences; and g) the task required the teacher to act as a guide/coach, rather than being teacher-centered.
4. The project has the real life purpose of raising money for a trip, so it has a high level of importance to the students.
5. The variety of tasks offer the opportunity for success and/or the opportunity to excel at all ability levels.
6. The project design appeals to several of the multiple intelligences.
7. Total student involvement is required.
8. Most activities in the project are hands-on.
9. The project requires student interaction with each other, as well as other members of the student body.
10. The cost of the project is reasonable.
11. The students learned unexpected lessons such as the laws regarding the use of copyrighted and trade-marked material.
12. This project is FUN for all to do!
13. Other possibilities for this activity if the Badge AMinit machine is not available, might include the design and production of tie-dyed T-shirts or designing and selling note paper.

Mike

### Business Excellence

Business excellence takes a lot of effort. You need to get along with people you may not normally get along with. It takes a lot of time and team work. You have to have designs that will sell and post them for reasonable prices. It takes to have an



**final comment**

The class took in \$243.55. After paying our start-up bills of \$70.93, we ended with a net profit of \$172.62. We were all surprised by the overwhelming financial success of this project. The students really felt very good about their efforts for excellence in their first business effort, and being able to achieve their goal of raising money for their field trip. We also learned that we would eventually be assessed a sales tax, but to date, have not received notice of the amount due, from our district business office. Our Superintendent was so pleased with our project, that the district is picking up our start-up bills, so our net profit will actually be \$243.55 minus the sales tax.