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Grades 4-5 Volume and Capacity

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Pace University

Science: Volume and Capacity

Subject: Science: Volume and Capacity

Grade: 4th

New York State Learning Standards:

Standard 1: Analysis, Inquiry, and Design

Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions.

Standard 4: Science

Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science

Standard 6: Interconnectedness: Common Themes

Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.

Standard 7: Interdisciplinary Problem Solving

Students will apply the knowledge and thinking skills of mathematics, science, and technology to address real-life problems and make informed decisions.

Hook:

The teacher will give each table of students each a glass of lemonade. The glasses will be different. She will than ask the students that in return they both need to bring her in a dollar tomorrow. She will ask them is that fair? The teacher will also ask if they like the glass they have or would they like to switch. The teacher will ask them to make their decision and ask the other members in the class what they have decided. The teacher will than ask them why they made that decision. This will lead into a review, explaining that the two glasses have the same volume, meaning when you measure out the lemonade it is the same volume in milliliters. The two glasses may be different, so they have a different capacity (the amount a container has the ability to hold) but since they are not filled to capacity, they are not unfair.

Essential Questions:

1. What is volume and capacity?
2. What is the relationship between volume and capacity?
3. What can we measure the volume or capacity of?
4. How do we measure volume and capacity?

Understandings:

1. Students will be able to use a graduated cylinder, 100 millimeter measuring cup, and syringe in multiple ways to measure volume and capacity.
2. Students will understand what volume and capacity are as well as be able to understand the difference between the two.
3. Student will be able to measure in liters and milliliters.
4. Students will be able to grasp the concept of the size of a milliliter and be able to use that knowledge to make estimations.
5. Students will understands how to connect their science experiments to real life situations.

Pre-assessment:

Prior to the start of this unit, the teacher will look at the student's over all grades in the last science unit. The teacher will also give out a short quiz that will not be counted towards the students' grade. A copy of this assessment is attached (see worksheet "Pre-test"). This assessment will measure their prior understanding on the vocabulary, and whether they are able to apply that vocabulary to a problem. These test scores will be used to create three tiered groups.

Input:

Each group will be responsible for understanding capacity, volume, and the difference between the two. The shape contracts the receive will include choices that have incorporate all the modalities of learning so that the students may choose what they want to do as well as each sheet is different depending on the level of the students and what they will be held accountable for. Each group will be tiered by level as well as interest.

Tier One:

Tier one is the blue group. They are the lowest level students.

The blue group will receive a "Science Shape up Contract". On the contract there are 3 shapes. The square shapes deal with measuring and understanding capacity. The Triangles focus on volume, and the circles on the difference between volume and capacity. The students will be

given an opportunity to read over all of the choices, and then will cut out one of each shape, glue them on the appropriate shape in the contract, and sign it.

After doing this the students will be instructed to go to stations around the room which correspond with the color square they chose as well as their group color. The students will be responsible for finding their station. Each day the teacher will only make one shape available. Day one will be the square, day two the triangle, and day three the circle. At each station there will be a task card with instructions, and all supplemental materials. They will also receive a vocabulary sheet at each station to remind them of the unit vocabulary. See attached.

Tier Two:

Tier two is the yellow group. They are the average level students.

The yellow group will receive a “Science Shape up Contract”. On the contract there are 3 shapes. The square shapes deal with measuring and understanding capacity. The Triangles focus on volume, and the circles on the difference between volume and capacity. The students will be given an opportunity to read over all of the choices, and then will cut out one of each shape, glue them on the appropriate shape in the contract, and sign it.

After doing this the students will be instructed to go to stations around the room which correspond with the color square they chose as well as their group color. The students will be responsible for finding their station. Each day the teacher will only make one shape available. Day one will be the square, day two the triangle, and day three the circle. At each station there will be a task card with instructions, and all supplemental materials. See attached.

Tier Three:

Tier three is the orange group. They are the advanced students.

The orange group will receive a “Science Shape up Contract”. On the contract there are 3 shapes. The square shapes deal with measuring and understanding capacity. The Triangles focus on volume, and the circles on the difference between volume and capacity. The students will be given an opportunity to read over all of the choices, and then will cut out one of each shape, glue them on the appropriate shape in the contract, and sign it.

After doing this the students will be instructed to go to stations around the room which correspond with the color square they chose as well as their group color. The students will be responsible for finding their station. Each day the teacher will only make one shape available. Day one will be the square, day two the triangle, and day three the circle. At each station there will be a task card with instructions, and all supplemental materials. See attached.

Post Assessment:

The students will be assessed on the work they do in each center. Each category: volume, capacity, and the relationship between volume and capacity, will be assessed separately. Attached are the rubrics for each category in each tiered level. This will be done after a three day period. At that point the teacher may choose to rearrange groups or push the group to a new level for the remainder of the unit.

The students will also be assessing themselves with a short survey they must complete about the work they did, how focused they were, and how they worked with their group. Attached is a sample of the survey.

Name: _____

Date: _____

Pre-Test!

1. You want to know how much water is in your water bottle. You would measure this by measuring the
    a. Mass
    b. Weight
    c. Volume
    d. Height
2. The unit of measurement used to measure a liquid is
    a. Grams
    b. Milliliters
    c. Inches
    d. Pounds
3. My container is filled to capacity which means it is filled
    a. Half way
    b. Almost all the way to the top
    c. To the top
4. What materials do you think you would use to measure water?

_____

_____

_____

5. You went to the store to buy juice. On the side of the juice there is a number. What is that number telling you?

_____

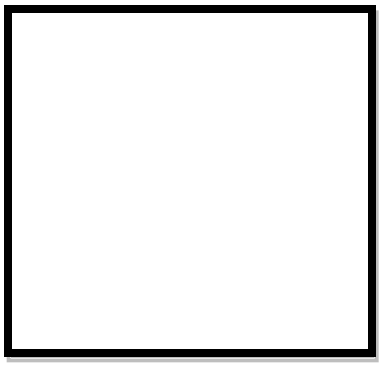
6. Have you ever measured liquids before? Please share anything you remember!

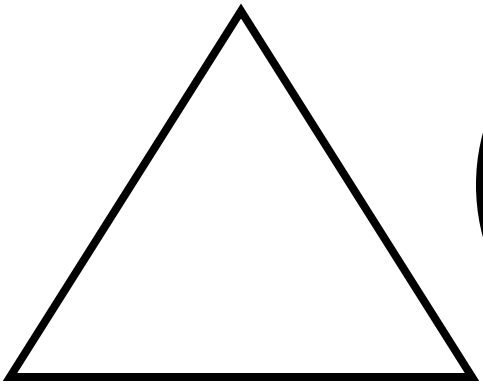
_____

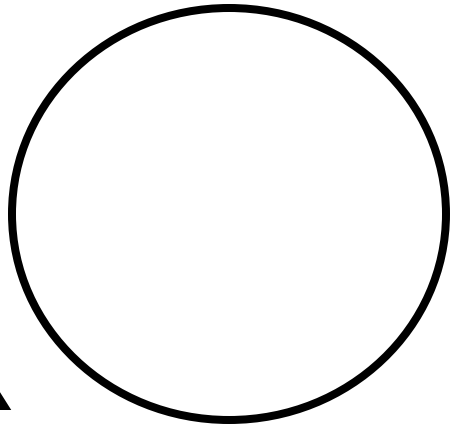
_____

Science Shape up Contract!

Choose an activity from each shape group. Cut out your choices and glue them below. You are responsible for these activities by _____. Have fun!







This contract belongs to_____

Using a graduated cylinder which measures 50 milliliters when filled to the top, measure how many full graduated cylinders it will take to fill three of the containers to capacity. Record your data on the data sheet. Which had the largest capacity?

Using a 100 milliliter measuring cup, measure the capacity of any 3 containers using full 100 ml cups. Record your data on the data sheet. Which had the largest capacity?

Using a syringe which measures 50 milliliters in each full pull, measure how many full syringes it will take to fill three of the containers to capacity. Record your data on the data sheet. Which had the smallest capacity?

Pour yourself a glass of water. Using any tool measure how much water you would be drinking (the volume). Write a story about being stuck in the desert with only amount of water.

Pour yourself a glass of water. Using any tool measure how much water you would be drinking (the volume). Draw a picture illustrating what type of animal could use that amount of water to take a bath.

You only get one glass of water filled to line "a" on the cup. Using any tool find the volume of the water. Write a poem as if that was all the water you were allowed for one day. (hint: it's not much!)

ACT IT OUT! Make a play where you have to explain to your friend why capacity and volume are different. Use all of your science vocabulary.

Write a letter to the school. Explain to them why you would want a glass that was filled to capacity. Be sure to explain what capacity is and how it is different than volume.

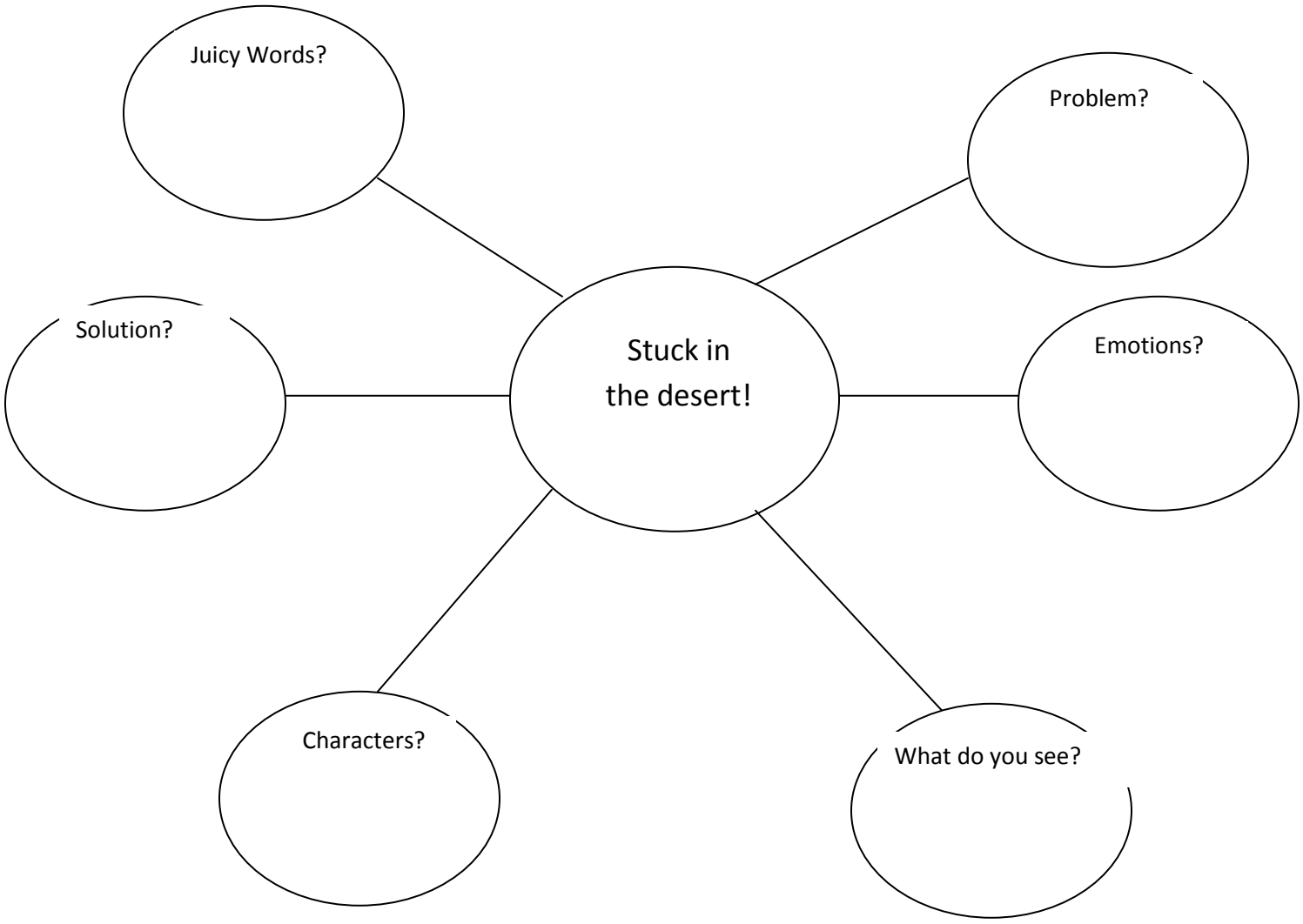
Write a song to any tune about what unit of measurement you would use to measure a bathtub. Liters or milliliters? What would be faster? Why would the other be silly?

Welcome Scientists!

Using the pitcher, pour yourself a glass of water. Using any of the tools (syringe, 100 ml measuring cup, or graduated cylinder) measure how much water you would be drinking. This is measuring the volume. Write a story about being stuck in the desert with only that amount of water. Use the web below to organize ideas before beginning.

Measuring tool used: _____

Volume of water: _____



Welcome Scientists!

Pour yourself a glass of water from the pitcher. Fill it to any level you want. Using any of the tools we've worked with (100 ml measuring cup, graduated cylinder, or syringe) measure how much water you poured. This is the volume. Draw a picture illustrating what type of animal could use that amount of water to take a bath. How much water do you think you would need?

Measuring tool used: _____

Volume of water _____

How much water do you think you would need to take a bath? _____

_____

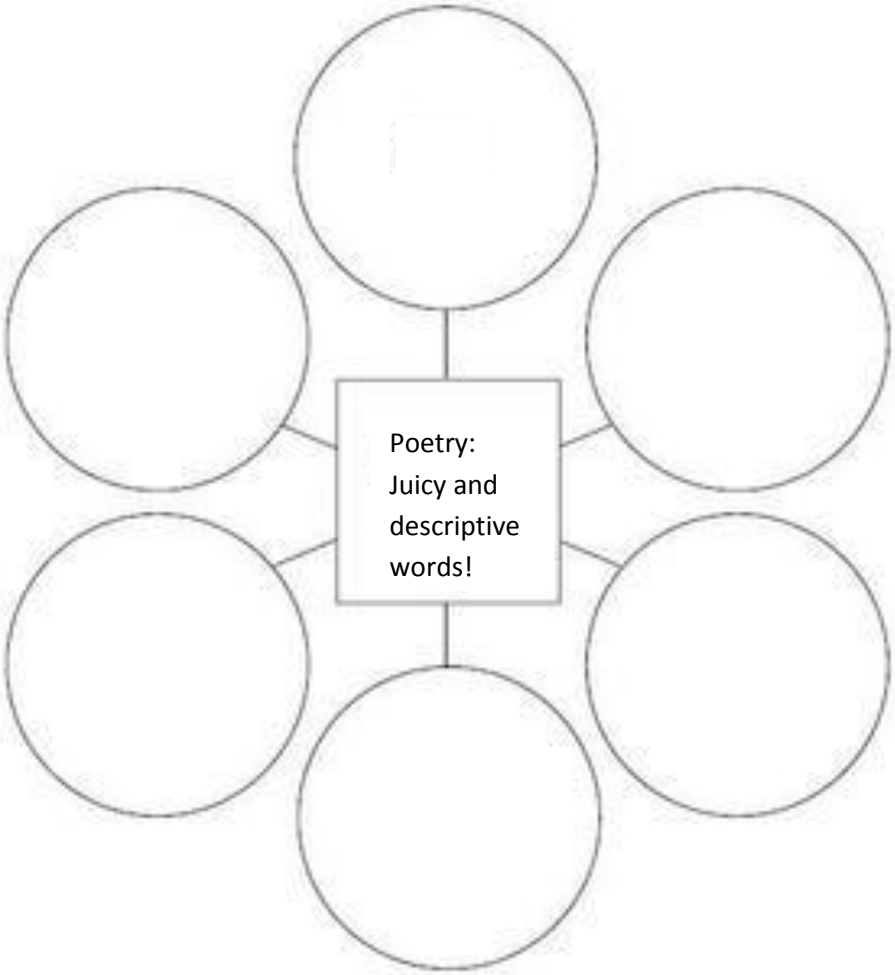
Please use a separate piece of paper to illustrate. Be sure to write a short paragraph on the back that includes the following: The volume of the bath water, what animal could use the amount of water, and how much water you would need and how you came up with that amount.

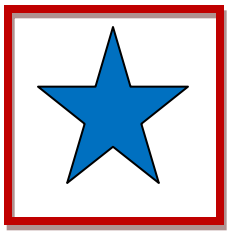
Welcome Scientists!

I hope you're not too thirsty! You only get one glass of water. Fill the cup to line "a". Using any tool we've been using (100 ml cup, graduated cylinder, syringe) measure the amount of water in the cup. This is the volume. After, write a poem as if this was the only water you were allowed to drink all day. (hint: it's not that much water!) Be sure to use "juicy" and descriptive words in your poem. Use the organizer below to help you and write the poem on loose leaf paper.

Tool used: _____

Volume of water: _____





Welcome Scientists!

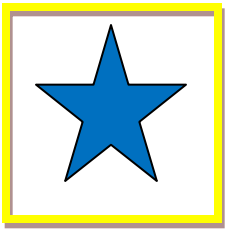
Using a graduated cylinder which measures 50 milliliters when filled to the top, measure how many full graduated cylinders it will take to fill three of the containers to capacity. Play around with the materials before you start. Be sure you are filling the graduated cylinder correctly! Remember you must be at eye level to make sure it is filled to the 50ml mark. Record all of your data below. Which had the largest capacity?

Be sure to use the vocabulary sheet at the station to help you. Remember to ask 3 students to clarify before you come to the teacher, and clean up before you leave the station!

Have fun!

	Number of Graduated Cylinders filled	Do the Math! The number of cylinders filled multiplied by 50 ml (show your work)	Capacity!
Container 1			
Container 2			
Container 3			

The container with the largest Capacity was_____



Welcome Scientists!

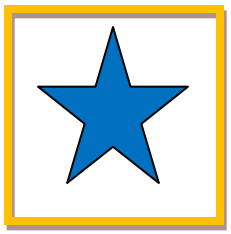
Using a 100 milliliter measuring cup which measures 100 milliliters when filled to the top, measure the capacity of any 3 containers using full 100 ml cups. Play around with the materials before you start. Be sure you are filling the cup correctly! Remember you must be at eye level to make sure it is filled to the 50ml mark. Record all of your data below. Which had the largest capacity?

Be sure to use the vocabulary sheet at the station to help you. Remember to ask 3 students to clarify before you come to the teacher, and clean up before you leave the station!

Have fun!

	Number of 100 milliliter measuring cups filled	Do the Math! The number of cups filled multiplied by 100 ml (show your work)	Capacity!
Container 1			
Container 2			
Container 3			

The container with the largest Capacity was_____



Welcome Scientists!

Using a syringe which measures 50 milliliters in each full pull, measure how many full syringes it will take to fill three of the containers to capacity. Play around with the materials before you start. Be sure you are filling the cup correctly! Remember you must be at eye level to make sure it is filled to the 50ml mark. Record all of your data below. Which had the smallest capacity?

Be sure to use the vocabulary sheet at the station to help you. Remember to ask 3 students to clarify before you come to the teacher, and clean up before you leave the station!

Have fun!

	Number of syringes filled	Do the Math! The number syringes used multiplied by 50 ml (show your work)	Capacity!
Container 1			
Container 2			
Container 3			

The container with the smallest Capacity was_____

Super Scientists!

Now that you understand what capacity is and what volume is, let's help others to understand as well! Write a play where you have to explain to a friend why capacity and volume are different. Be sure to use all of your science vocabulary (don't be afraid to use you science vocabulary sheet).

ACTION!

Characters: _____

Setting: _____

Props needed: _____

Dialog:_____

_____

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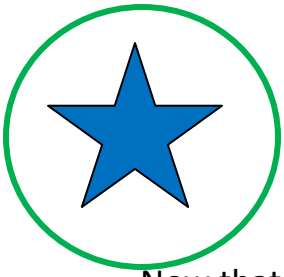

Super Scientists!

Now that you understand what capacity is and what volume is, let's help others to understand as well! Write a letter to the school explaining why you would want a glass of milk with lunch that is filled to capacity. Be sure to explain what capacity is and how it is different than volume. If you need more room please write on the back!

Dear School Administration,

_____

_____

_____

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_____,

_____

Super Scientists!

Now that you understand what capacity is and what volume is, let's help others to understand as well!

If you measured how much water a bath tub could hold would you be measuring volume or capacity? _____

Would you measure the bath tub with liters or milliliters? _____

Which way would be faster? _____

Why would the other unit of measurement be silly?

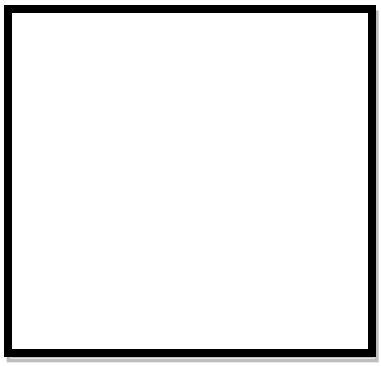
_____

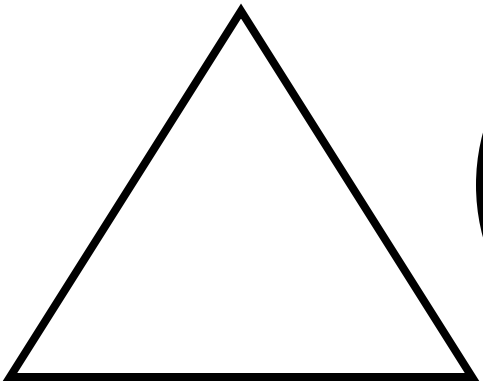
Using all of your answers, write a song about filling and measuring a bath tub.

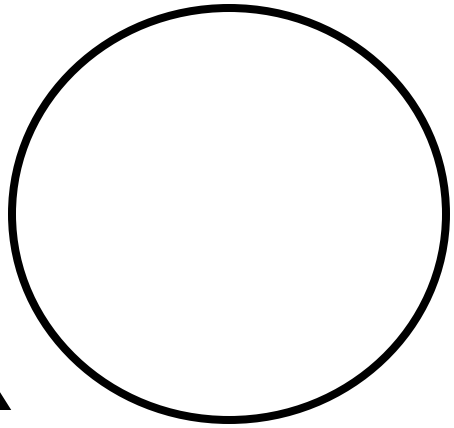
First decide what song will you write the words to? Be creative! Write it on loose leaf paper. Use the space below to brainstorm ideas.

Science Shape up Contract!

Choose an activity from each shape group. Cut out your choices and glue them below. You are responsible for these activities by _____. Have fun!







This contract belongs to_____

Measure the capacity of any four containers using a graduated cylinder. Measure to the closest multiple of ten. Record your data on the data sheet. Graph your four results in a bar graph to show which had the largest capacity.

Measure the capacity of 4 containers using a syringe. Measure to the closest multiple of ten. Record your data on the data sheet. Draw a picture to show how you performed the experiment.

Measure the capacity of three different glasses. Use either a syringe or a graduated cylinder. Which glass has the largest capacity? Write a short response about what glass you would want if you were buying soda and why.

Measure the volume of the cup at line A and B. Estimate the Amount, than measure The level, and find the difference. How much were you off? Record all data.

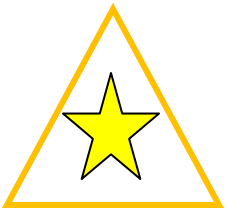
Measure the volume of the cup at line A and B. Draw a picture of the experiment. Record your data. Could you take a bath in that much water? Draw a cartoon of someone trying to.

Measure the volume of the cup at line A and B. What if that was All the water you were Allowed to drink? Write a Story about what that would be like. Use "juicy" words!

Observe a classmate pouring water for an experiment. What techniques do they use? Write a "how to" for all experiments with measuring volume and capacity. How do the two experiments differ?

Have a debate! Argue why it is either better to have restaurants serve you soda based on the capacity of the cup or a set volume. Which one would be better for the customer? The restaurant? Choose a side: volume or capacity.

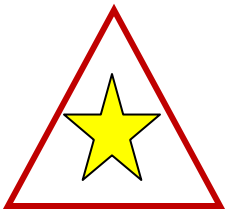
Act it out! You are running a lemonade stand like I did. Act out an argument between a customer and the sales person. Be sure to use the vocabulary when proving your point! Why does it not matter if everyone has different cups?



Welcome Super Scientists!

Look at the cup you have. On the cup there is a line labeled “A” and one labeled “B”. Estimate what you think the volume will be at those lines. Record it in your data table. After, measure the actual amount using any tool you want to the closest 10 milliliters. Record, and find the difference between the estimation and actual answer.

	Estimation (ml)	Actual Amount (ml)	Difference
Line A			
Line B			



Welcome Super Scientists!

Look at the cup you have. On the cup there is a line labeled “A” and one labeled “B”. Measure the volume using any tool you want to the closest 10 milliliters. Record all answers.

	Volume (ml)
Line A	
Line B	

Below draw a picture of the experiment:

Could you take a bath in that much water? Using the supplies from the art table, draw a cartoon of someone trying to.

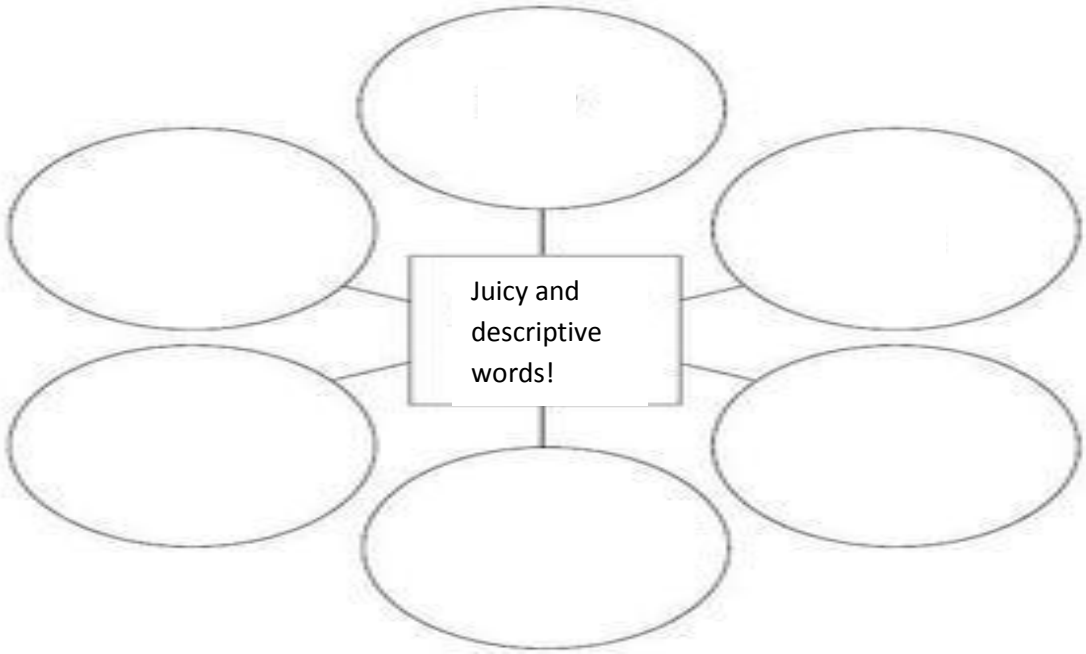
Welcome Super Scientists!

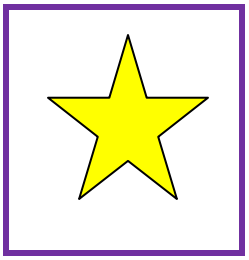
Look at the cup you have. On the cup there is a line labeled “A” and one labeled “B”. Measure the volume using any tool you want to the closest 10 milliliters. Record all answers.

	Volume (ml)
Line A	
Line B	

What if that was all the water you were allowed to drink? Write a story about what that would be like. Use good imagery!

To help you get started, brainstorm some words below:



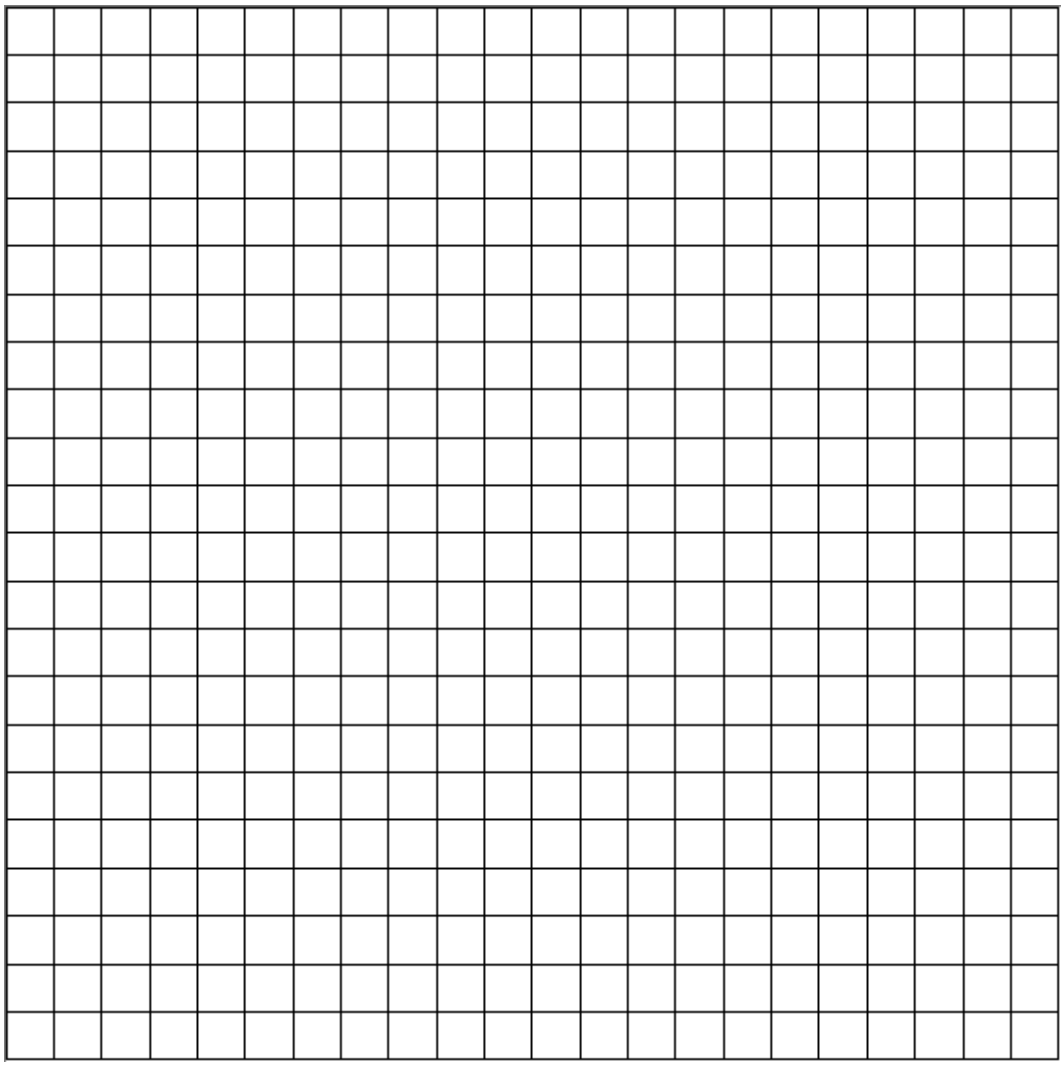


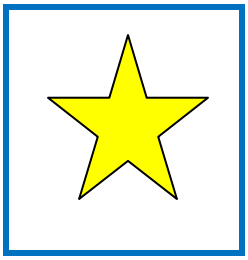
Welcome Scientists!

Measure the capacity of any four containers using a graduated cylinder. Measure to the closest multiple of ten. Before you begin talk to your group members to review what the best ways are to measure with water. Record your data on the data sheet. Graph your results using a bar graph to show which had the largest capacity.

	Measurement in milliliters (closest multiple of ten)	Can this number be changed into liters? If so calculate.	Capacity!
Container 1			
Container 2			
Container 3			

When making your graph don’t forget your title, and to label the axis!

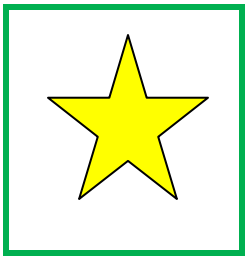




Welcome Scientists!

Measure the capacity of any four containers using a syringe. Measure to the closest multiple of ten. Before you begin talk to your group members to review what the best ways are to measure with water. Record your data on the data sheet. After completing, draw a picture using tools from the art center to show how you performed the experiment. Write out steps to explain your picture.

	Measurement in milliliters (closest multiple of ten)	Can this number be changed into liters? If so calculate.	Capacity!
Container 1			
Container 2			
Container 3			

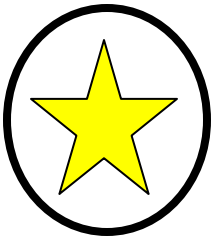


Welcome Scientists!

Measure the capacity of any three glasses using a syringe or a graduated cylinder. Which glass has the largest capacity? Before beginning the experiment, review the best ways to measure water with your group members.

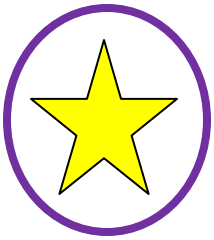
Write a short response on loose leaf paper about what glass you would want if you were buying a soda.

	Measurement in milliliters (closest multiple of ten)	Can this number be changed into liters? If so calculate.	Capacity!
Container 1			
Container 2			
Container 3			



Super Scientists!

Observe a classmate pouring water for an experiment. What techniques do they use? Write a “how to” for all experiments that involve measuring volume and capacity. How would measuring the two be different? Remember when writing a “how to” book the language we use. Brainstorm some “how to” language with your group below before beginning. You any use any writing or art supplies to make your book.



Super Scientists!

Have a debate! Within your group, divide in to two sides: those who think it is better to have a restaurant serve you water based on capacity versus those who think measuring by volume would be better. Which one do you think a consumer would prefer? Which side do you think a restaurant owner would take? Work with your group to conference about what argument you can make. Write out notes and you will be given the opportunity to have your debate in front of the class.

Fighting for Capacity:

_____

_____

_____

Fighting for Volume:

_____

_____

_____

Super Scientists!

Think back to the beginning of the week when I asked you to choose a glass of lemonade. Now it's your turn to do the same! Write a play as if an argument was started between a sales person and a customer because they didn't think they were getting an equal amount of lemonade because there glass was shorter. Be sure to use vocabulary when the sales person is proving their point! Why does the cup not matter?

ACTION!

Characters: _____

Setting: _____

Props needed: _____

Dialog:_____

_____

_____

_____

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_____

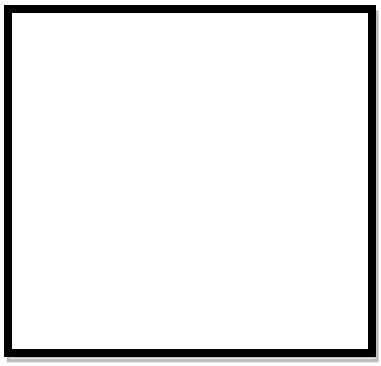
_____

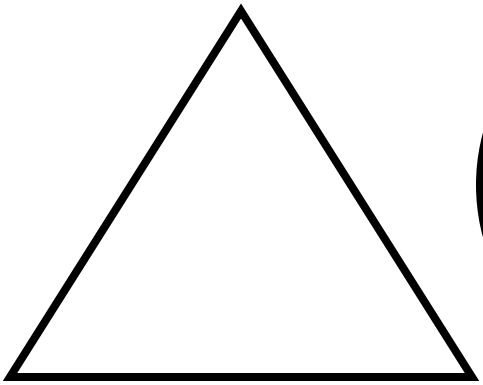
_____

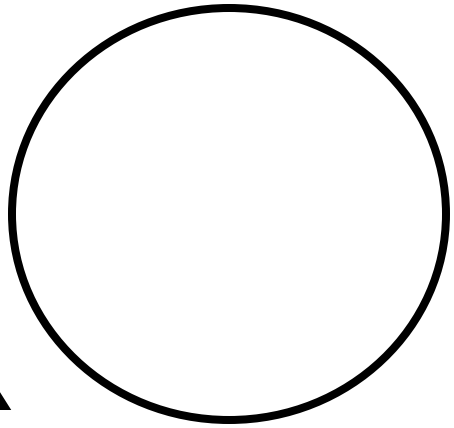
_____

Science Shape up Contract!

Choose an activity from each shape group. Cut out your choices and glue them below. You are responsible for these activities by _____. Have fun!







This contract belongs to_____

Measure the capacity of any four containers using a graduated cylinder. Measure to the closest millimeter. Graph your results on the computer. List the containers in order, show your work, and record all data on a table.

Measure the capacity of 4 containers using a syringe. Measure to the closest milliliter. Record all data. Which one has the largest capacity? Write a riddle to help students find which one it is. Use strong imagery!

Measure the capacity of three different glasses. Use both a syringe and a graduated cylinder. Write down all data and observations about using the two tools. Which one is easier? Write a persuasive response about which tool students should use.

Measure the volume of the cup at line A, B,C, D. Estimate the amount and Find the actual amount. Find The difference between the two values. Graph your estimates and actual answers. Which graph would you use?

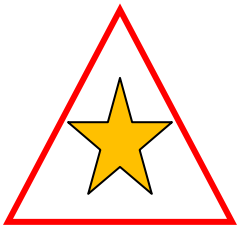
Measure the volume of the cup at line A,B, C, D. Results should be to the Nearest milliliter. Give a demonstration to the class showing how you did the experiment. Write up a script first.

Measure the volume of the cup at line A, B, C, D. Results should be given to the nearest milliliter. Write a journal as if you were stuck in the dessert with only that much water. How would you make it last? How much could you drink each day?

Are the soda companies not giving you your money's worth? Write an experiment to find whether the amount on the can is the volume or capacity. Explain whether the soda company gives you your money's worth!

Write an article for the school newspaper. The cafeteria gives milk containers that are not filled to the top. How do we know that they are giving us the full amount? Write a persuasive article about whether they are giving us capacity or volume.

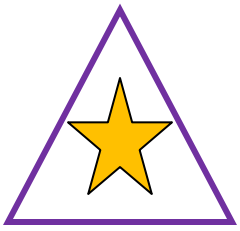
Why is being able to measure capacity and volume so important? Think of some examples and explain. Include pictures with your explanations where appropriate.



Welcome Scientists!

Measure the volume of the cup at lines “A”, “B”, “C”, and “D”. Before you do that, estimate what you think the volume will be at each level. Record your estimations on the data table and than the actual volumes. Than find the difference between the two. Graph your estimates against your actual answers. Which kind of graph do you think you should use? Be sure to label the graph correctly. You can either graph it on the computer or on a piece of graph paper.

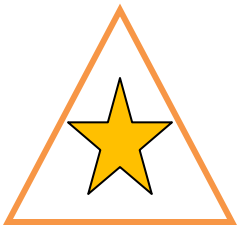
	Estimate (ml)	Actual volume (ml)	Difference (ml)
Line A			
Line B			
Line C			
Line D			



Welcome Scientists!

Measure the volume of the cup at lines “A”, “B”, “C”, and “D”. Results should be measured to the nearest milliliter. After you record your answers, start writing a script to give a demonstration to the class showing how you performed the experiment. Write up a script giving specific directions.

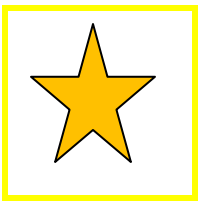
	Volume (ml)
Line A	
Line B	
Line C	
Line D	



Welcome Scientists!

Measure the volume of the cup at lines “A”, “B”, “C”, and “D”. Results should be measured to the nearest milliliter. After you record your answers, start writing a journal as if you were stuck in the desert with water only up to line “D”. How could you make that water last? How much would you drink each day? Think about how you would feel with only that much water, use emotions and strong imagery.

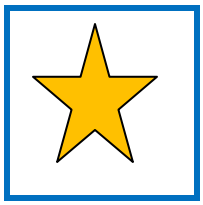
	Volume (ml)
Line A	
Line B	
Line C	
Line D	



Welcome Scientists!

Measure the capacity of any four containers using a graduated cylinder. Measure the capacity to the closest milliliter. Record your results in the table. Than graph your results on the computer. Be sure to label the graph correctly. Use any graph you would like (bar, line, or dot).

	CAPACITY (ml)
Container 1	
Container 2	
Container 3	
Container 4	

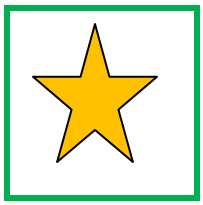


Welcome Scientists!

Measure the capacity of any four containers using a syringe. Measure the capacity to the closest milliliter. Record your results in the table. Which one has the largest capacity? Write a riddle to help students find out which one it is. Use strong imagery. Use the box under the table to brainstorm before writing the riddle.

	CAPACITY (ml)
Container 1	
Container 2	
Container 3	
Container 4	

Properties of the largest container…



Welcome Scientists!

Measure the capacity of any three different glasses. Use both a syringe and a graduated cylinder. Record all the data below and use the box below to write down all observations about using the two tools. Which one is easier to use? Write a persuasive response about which tools you think your classmates should use.

	CAPACITY (ml)
Container 1	
Container 2	
Container 3	

Observations of the two measuring tools:

Successful Scientists!

Have you ever opened up a soda and noticed that the soda is not filled to the top? On the side of the can it says 335ml. Are they talking about the capacity or the volume? Create an experiment to find out whether the amount on the side of the can is the volume or capacity. Explain whether the soda company is giving you your money's worth!

Be sure to include…

Problem:

Hypothesis:

Materials:

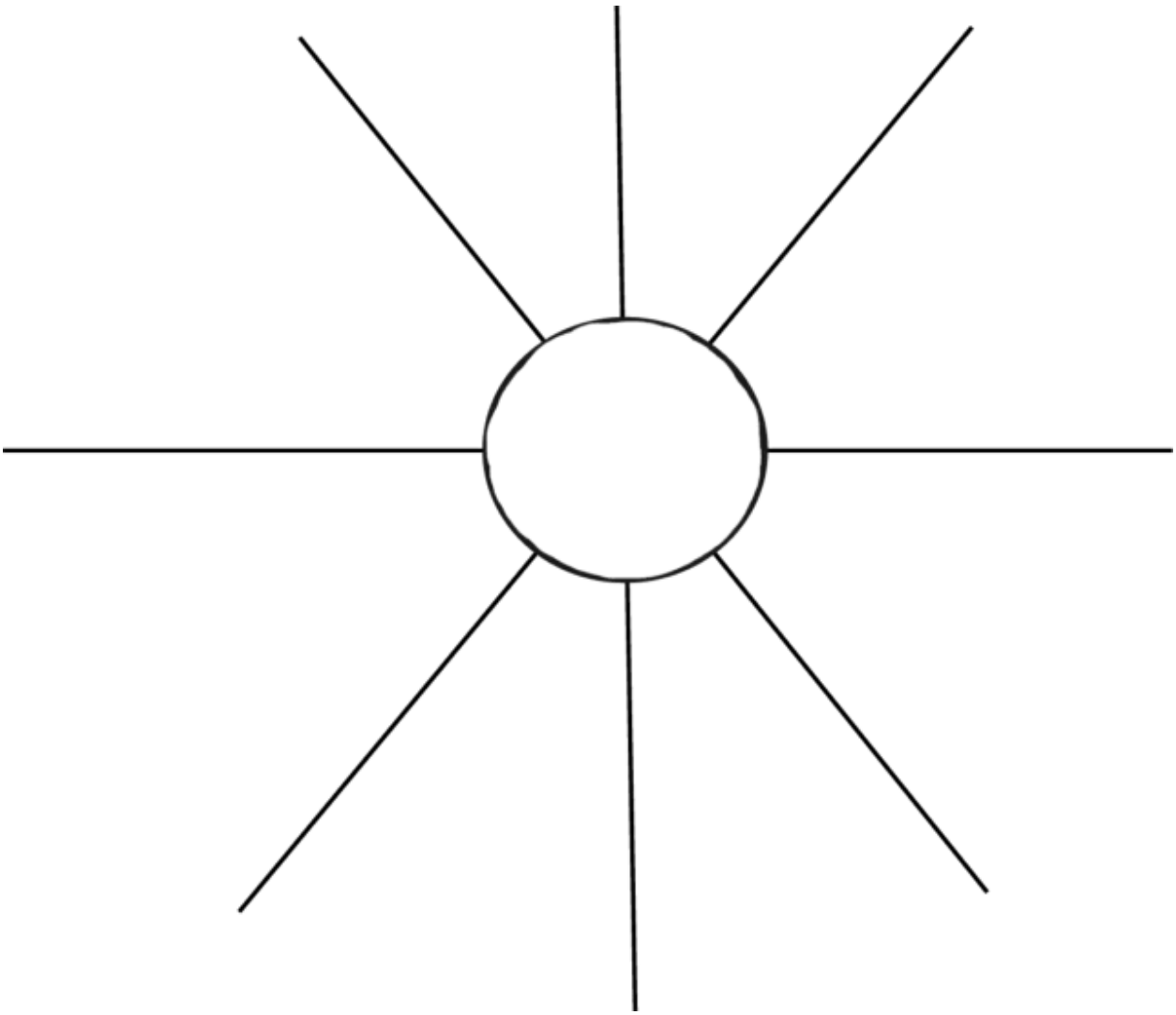
Procedure:

Data:

Conclusion:

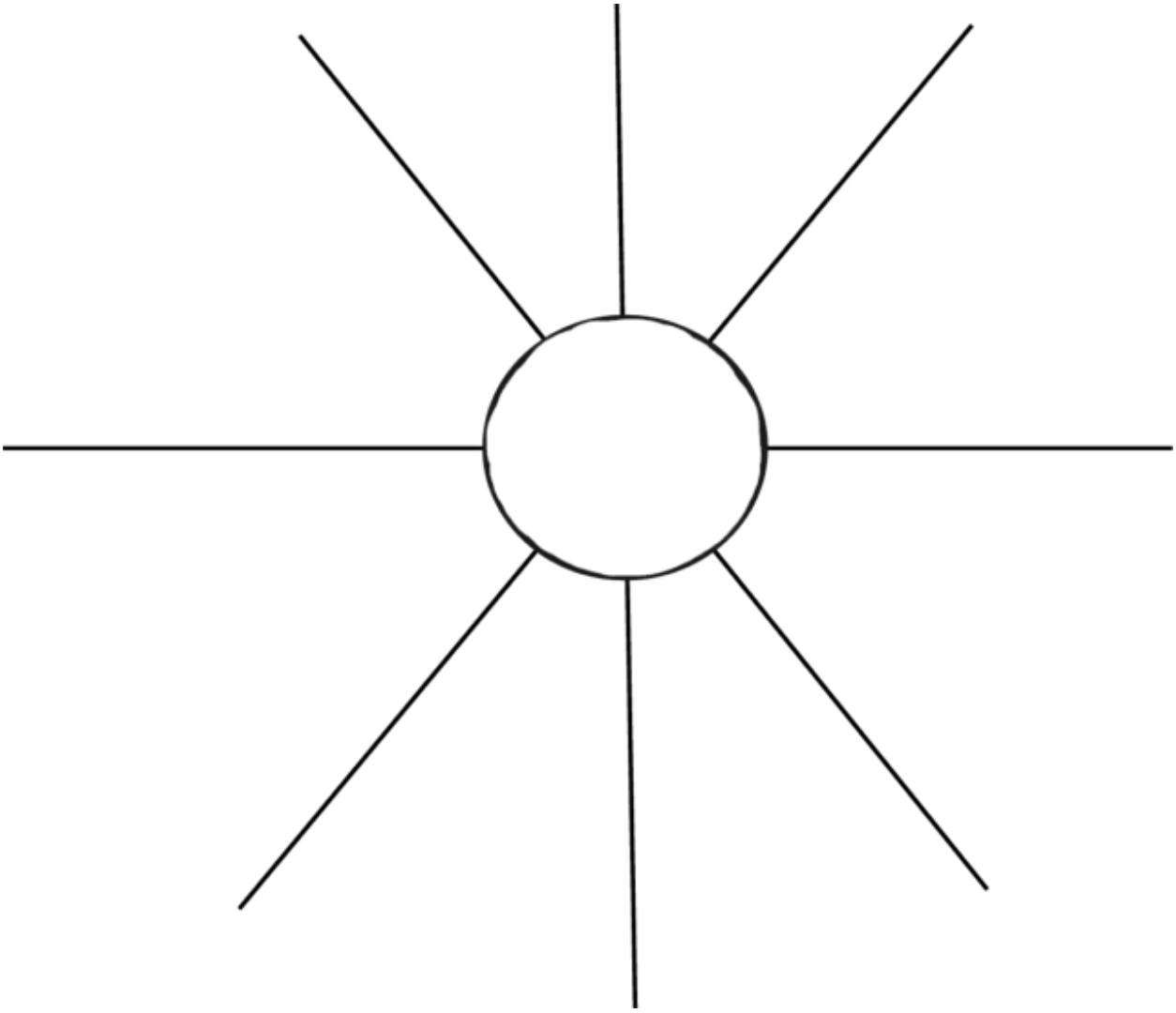
Successful Scientists!

Open up the milk container. Is it filled to the top? How does that make you feel about how much you are spending on it? Write an article of the school newspaper. Argue for why we are or are not getting the full amount of milk that the cafeteria advertises. Are they giving us capacity or volume? Use the graphic organizer below to organize your ideas.



Successful Scientists!

Why do you think we learn about volume and capacity in school? Why is it so important to be able to measure volume and capacity? Think of some examples of when you would use it in everyday life. Accompany your explanation with pictures.



Name: _____

Date: _____

Self Assessment Survey!

Please fill out the following survey evaluating how you think you worked during this unit. For each statement either give yourself a 3 for agree, 2 if you think you could have done better, or a 1 if you disagree. Remember to be honest and reflective!

1. I completed a square, circle, and triangle project as I agreed to on my shape contract._____
2. I worked well with my group members, participated equally, and there was little conflict when working together. _____
3. I feel like I understand capacity, volume, and the difference between the two. _____
4. I understand how to use all of the materials given to me during my science experiments. _____
5. I felt as if the projects were "just right" projects for me. They were not too easy and not too difficult. _____
6. If they were not "just right" were they too easy or too difficult?_____
7. Please explain why you felt they were too easy or too difficult for you:

   _____

   _____
8. Overall after completing this unit, I am finishing feeling:

I have mastered the unit Confident Like I still need practice

Confused Completely Lost

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RubiStar (http://rubistar.4teachers.org)

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Collaborative Work Skills : Group Work Evaluation

Teacher Name: **Ms. Portanova**

Student Name: _____

CATEGORY	4	3	2	1
Quality of Work	Provides work of the highest quality.	Provides high quality work.	Provides work that occasionally needs to be checked/redone by other group members to ensure quality.	Provides work that usually needs to be checked/redone by others to ensure quality.
Time-management	Routinely uses time well throughout the project to ensure things get done on time. Group does not have to adjust deadlines or work responsibilities because of this person's procrastination.	Usually uses time well throughout the project, but may have procrastinated on one thing. Group does not have to adjust deadlines or work responsibilities because of this person's procrastination.	Tends to procrastinate, but always gets things done by the deadlines. Group does not have to adjust deadlines or work responsibilities because of this person's procrastination.	Rarely gets things done by the deadlines AND group has to adjust deadlines or work responsibilities because of this person's inadequate time management.
Attitude	Never is publicly critical of the project or the work of others. Always has a positive attitude about the task(s).	Rarely is publicly critical of the project or the work of others. Often has a positive attitude about the task(s).	Occasionally is publicly critical of the project or the work of other members of the group. Usually has a positive attitude about the task(s).	Often is publicly critical of the project or the work of other members of the group. Often has a negative attitude about the task(s).

Focus on the task	Consistently stays focused on the task and what needs to be done. Very self-directed.	Focuses on the task and what needs to be done most of the time. Other group members can count on this person.	Focuses on the task and what needs to be done some of the time. Other group members must sometimes nag, prod, and remind to keep this person on-task.	Rarely focuses on the task and what needs to be done. Lets others do the work.
Working with Others	Almost always listens to, shares with, and supports the efforts of others. Tries to keep people working well together.	Usually listens to, shares, with, and supports the efforts of others. Does not cause "waves" in the group.	Often listens to, shares with, and supports the efforts of others, but sometimes is not a good team member.	Rarely listens to, shares with, and supports the efforts of others. Often is not a good team player.

Date Created: **Apr 29, 2009 07:09 pm (CDT)**

Lab Report : Volume and Capacity

Teacher Name: **Ms. Portanova**

Student Name: _____

CATEGORY	4	3	2	1
Spelling, Punctuation and Grammar	One or fewer errors in spelling, punctuation and grammar in the report.	Two or three errors in spelling, punctuation and grammar in the report.	Four errors in spelling, punctuation and grammar in the report.	More than 4 errors in spelling, punctuation and grammar in the report.
Data	Professional looking and accurate representation of the data in tables and/or graphs. Graphs and tables are labeled and titled.	Accurate representation of the data in tables and/or graphs. Graphs and tables are labeled and titled.	Accurate representation of the data in written form, but no graphs or tables are presented.	Data are not shown OR are inaccurate.
Calculations	All calculations are shown and the results are correct and labeled appropriately.	Some calculations are shown and the results are correct and labeled appropriately.	Some calculations are shown and the results labeled appropriately.	No calculations are shown OR results are inaccurate or mislabeled.
Materials	All materials and setup used correctly.	Almost all materials and the setup are used correctly.	Most of the materials and the setup are used correctly.	Many materials are described inaccurately and are not used correctly.
Conclusion	Conclusion includes what was learned from the experiment.	Conclusion mostly includes what was learned from the experiment.	Conclusion does not includes what was learned from the experiment.	No conclusion was included in the report OR shows little effort and reflection.

Date Created: **Apr 29, 2009 07:14 pm (CDT)**

Oral Presentation Rubric : Individual Products from Stations

Teacher Name: **Ms. Portanova**

Student Name: _____

CATEGORY	4	3	2	1
Content	Shows a full understanding of the topic.	Shows a good understanding of the topic.	Shows a good understanding of parts of the topic.	Does not seem to understand the topic very well.
Comprehension	Student is able to accurately answer almost all questions posed by classmates about the topic.	Student is able to accurately answer most questions posed by classmates about the topic.	Student is able to accurately answer a few questions posed by classmates about the topic.	Student is unable to accurately answer questions posed by classmates about the topic.
Preparedness	Student is completely prepared and has obviously rehearsed.	Student seems pretty prepared but might have needed a couple more rehearsals.	The student is somewhat prepared, but it is clear that rehearsal was lacking.	Student does not seem at all prepared to present.
Vocabulary	Uses vocabulary appropriate for the audience. Extends audience vocabulary by defining words that might be new to most of the audience.	Uses vocabulary appropriate for the audience. Includes 1-2 words that might be new to most of the audience, but does not define them.	Uses vocabulary appropriate for the audience. Does not include any vocabulary that might be new to the audience.	Uses several (5 or more) words or phrases that are not understood by the audience.

Enthusiasm	Facial expressions and body language generate a strong interest and enthusiasm about the topic in others.	Facial expressions and body language sometimes generate a strong interest and enthusiasm about the topic in others.	Facial expressions and body language are used to try to generate enthusiasm, but seem somewhat faked.	Very little use of facial expressions or body language. Did not generate much interest in topic being presented.

Date Created: **Apr 29, 2009 07:18 pm (CDT)**

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Story Telling : Journals and plays

Teacher Name: **Ms. Portanova**

Student Name: _____

CATEGORY	4	3	2	1
Vocabulary	Uses a varied vocabulary appropriate for the audience, and also successfully tries to enlarge the	Uses a varied vocabulary that is appropriate for the audience.	Uses a varied vocabulary that is occasionally a little to simple or a little too hard for the	The vocabulary was not varied OR was routinely inappropriate for the intended audience.

	audience's vocabulary.		audience.	
Setting	Lots of vivid, descriptive words are used to tell the audience when and where the story takes place.	Some vivid, descriptive words are used to tell the audience when and where the story takes place.	The audience can figure out when and where the story took place, but there isn't much detail (e.g., once upon a time in a land far, far away).	The audience has trouble telling when and where the story takes place.
Characters	The main characters are named and clearly described (through words and/or actions). The audience knows and can describe what the characters look like and how they typically behave.	The main characters are named and described (through words and/or actions). The audience has a fairly good idea of what the characters look like.	The main characters are named. The audience knows very little about the main characters.	It is hard to tell who the main characters are.
Acting/dialogue	The student uses consistent voices, facial expressions and movements to make the characters more believable and the story more easily understood.	The student often uses voices, facial expressions and movements to make the characters more believable and the story more easily understood.	The student tries to use voices, facial expressions and movements to make the characters more believable and the story more easily understood.	The student tells the story but does not use voices, facial expressions or movement to make the storytelling more interesting or clear.
Written Copy	The student turns in an attractive and complete copy of the story in the correct format.	The student turns in a complete copy of the story in the correct format.	The student turns in an complete copy of the story, but the format was not correct.	The student turns in an incomplete copy of the story.

Date Created: **Apr 29, 2009 07:21 pm (CDT)**