

Name:

Date:

Class:

Cost Benefit Analysis Worksheet

(Group number/name)

Instructions

1. Discuss with your group which material you think you want to use.
2. Take measurements of your container and estimate how much material you will need to purchase. You must also think of what type of seawall you are creating: mound, vertical or curved. Record choices on design sheet.
3. Before purchasing fill out cost benefit analysis. Determine the total cost of your first seawall iteration and the environmental impact.
4. Once you have filled out your paper you can bring it to the store to purchase materials.
5. It is time to build! Work as a team and use your materials wisely! If you need more materials add them to your ledger and then go to the store.
6. When you are finished, make sure your wall is dry and then move onto the second set of instructions

Cost Benefit Analysis

- Multiply total amount by cost to get total cost
- Add or subtract benefit number to get final total

First Iteration Wall Total Cost: \$ _____

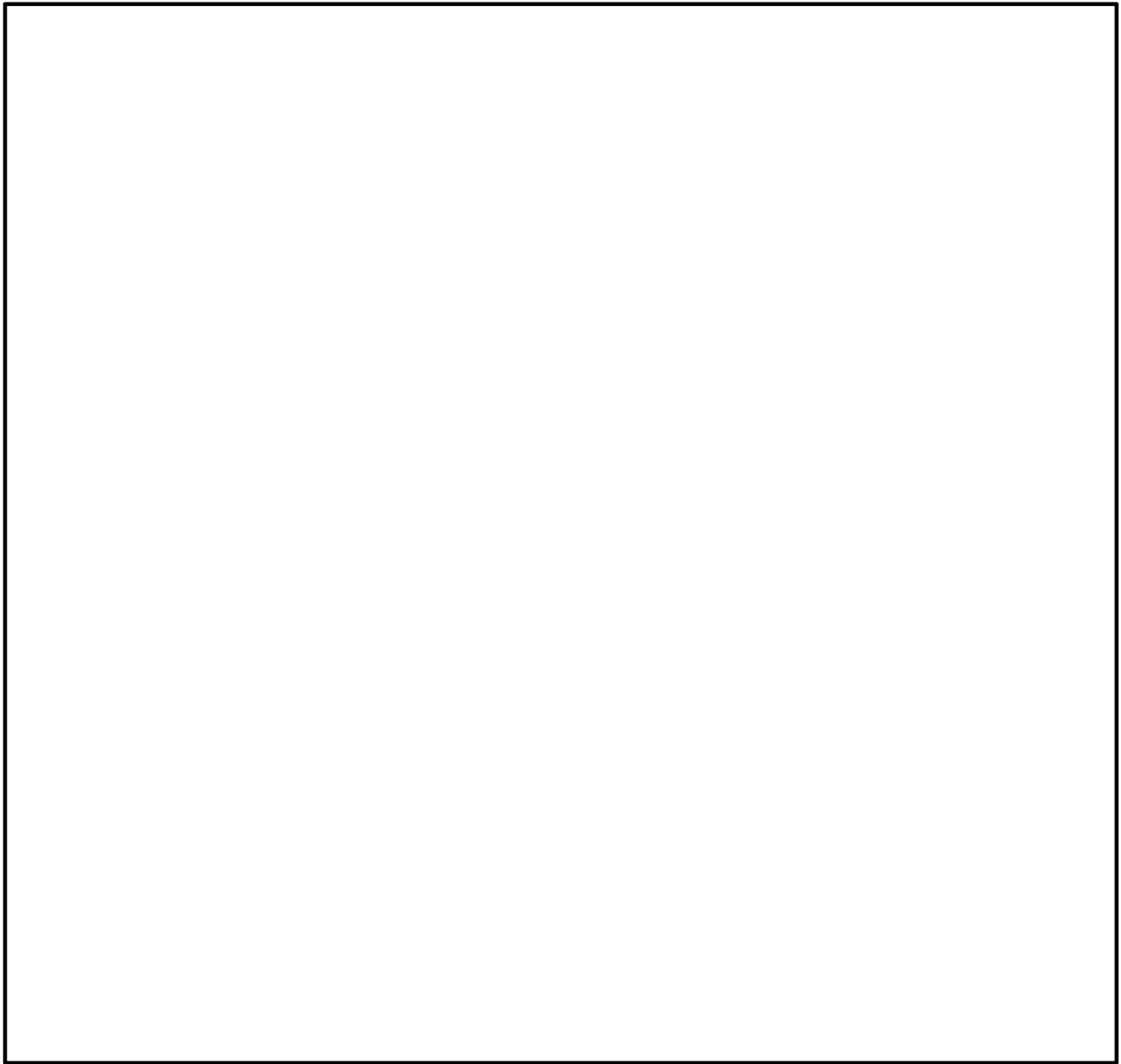
ITEM	COST PER AMOUNT	BENEFIT (+)	TOTAL AMOUNT	TOTAL COST (-)
Rocks	50 grams= \$15	-\$7		
Rubber	50 grams= \$10	-\$5		
Mangroves	10 popsicle sticks= \$5	+\$5		
Concrete	1 cup= \$3	0		

Name:

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Class:

Wall Design



- Material 1 _____ Amount: _____
- Material 2 _____ Amount: _____
- Material 3 _____ Amount: _____
- Material 4 _____ Amount: _____

Name:

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Class:

Instructions

1. Fill your container with the correct amount of sand on one side of the wall and correct amount of water on the other side.
2. Trace the slope of the sand in your container on the side of the container in permanent marker. After, raise your hand and wait for the teacher to come over to test.
3. After the test, record your change in slope on the side by tracing it with a different colored marker. Measure the change in the slope at the greatest point of difference in centimeters. Record it on your sheet.
4. Reset your container and repeat these steps two more times.
5. Once finished, record your findings and brainstorm with team for what could be done better.

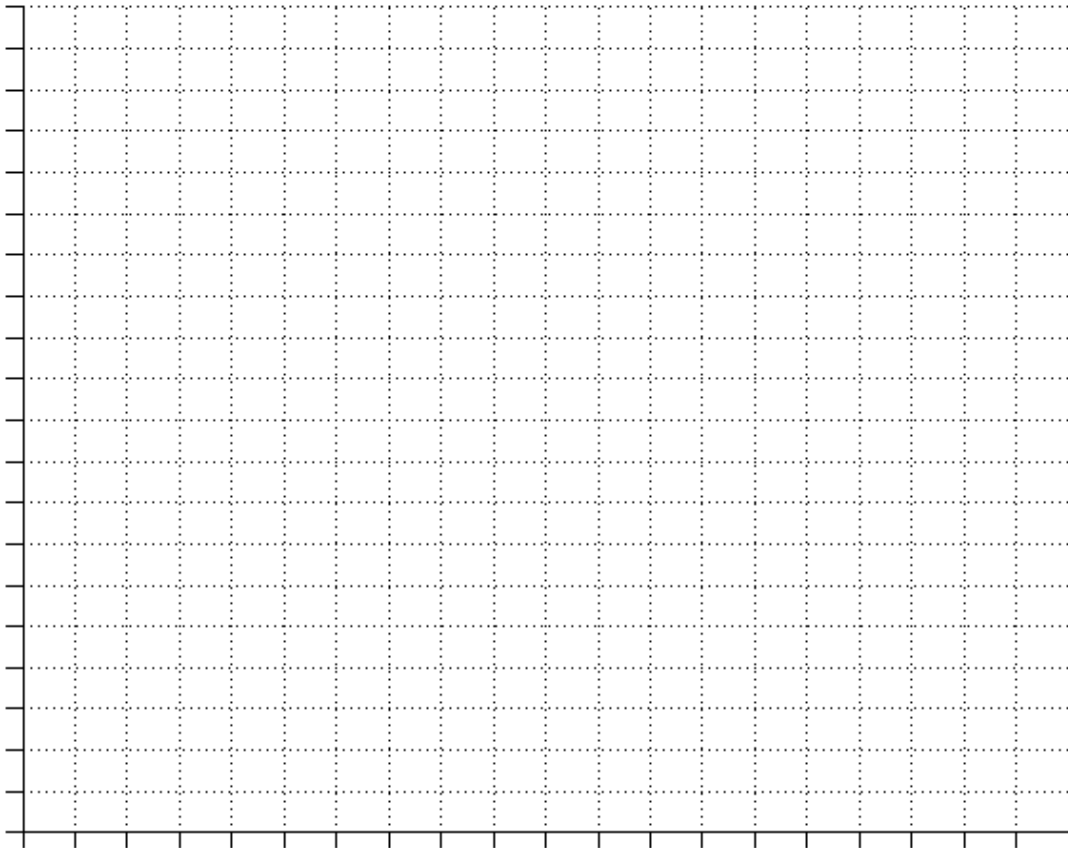
Once you have a new design planned you can get it approved by the teacher and then repeat all the steps from today and yesterday.

Name:

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Class:

Recording Sheet



- Draw the first line in black
- Test your wall and draw the second line in green. Graph the line on your paper. Then put sand back to original black line.
- Draw the third line in blue and test. Graph the line on your paper. Then put sand back to original black line.
- Draw the final test line in red and test. Graph the line on your paper. Then put sand back to original black line.

Now measure the amount of sand lost during each test.

1st test _____ in

2nd test _____ in

3rd test _____ in

Average= the sum of all
three tests divided by 3

BONUS:

What is the average amount of sand lost during each test? _____ in

Name:

Date:

Class:

Final Data

1. Multiply your average inches of sand lost for all three tests by \$5.

Average inches of sand x \$5 = _____

2. Now subtract the total cost of your wall from the inches of sand lost.

Final cost of wall - cost of inches of sand lost = _____

3. What was the total cost? the total cost?
4. How much do you have left of your original \$50?
5. Do you think that you can create a more cost-efficient design or one that erodes less?

TRY AGAIN!

Cost Benefit Analysis #2

ITEM	COST PER AMOUNT	BENEFIT (+)	TOTAL AMOUNT	TOTAL COST (-)
Rocks	50 grams= \$15	-\$7		
Rubber	50 grams= \$10	-\$5		
Mangroves	10 popsicle sticks= \$5	+\$5		
Concrete	1 cup= \$3	0		

- Multiply total amount by cost to get total cost
- Add or subtract benefit number to get final total

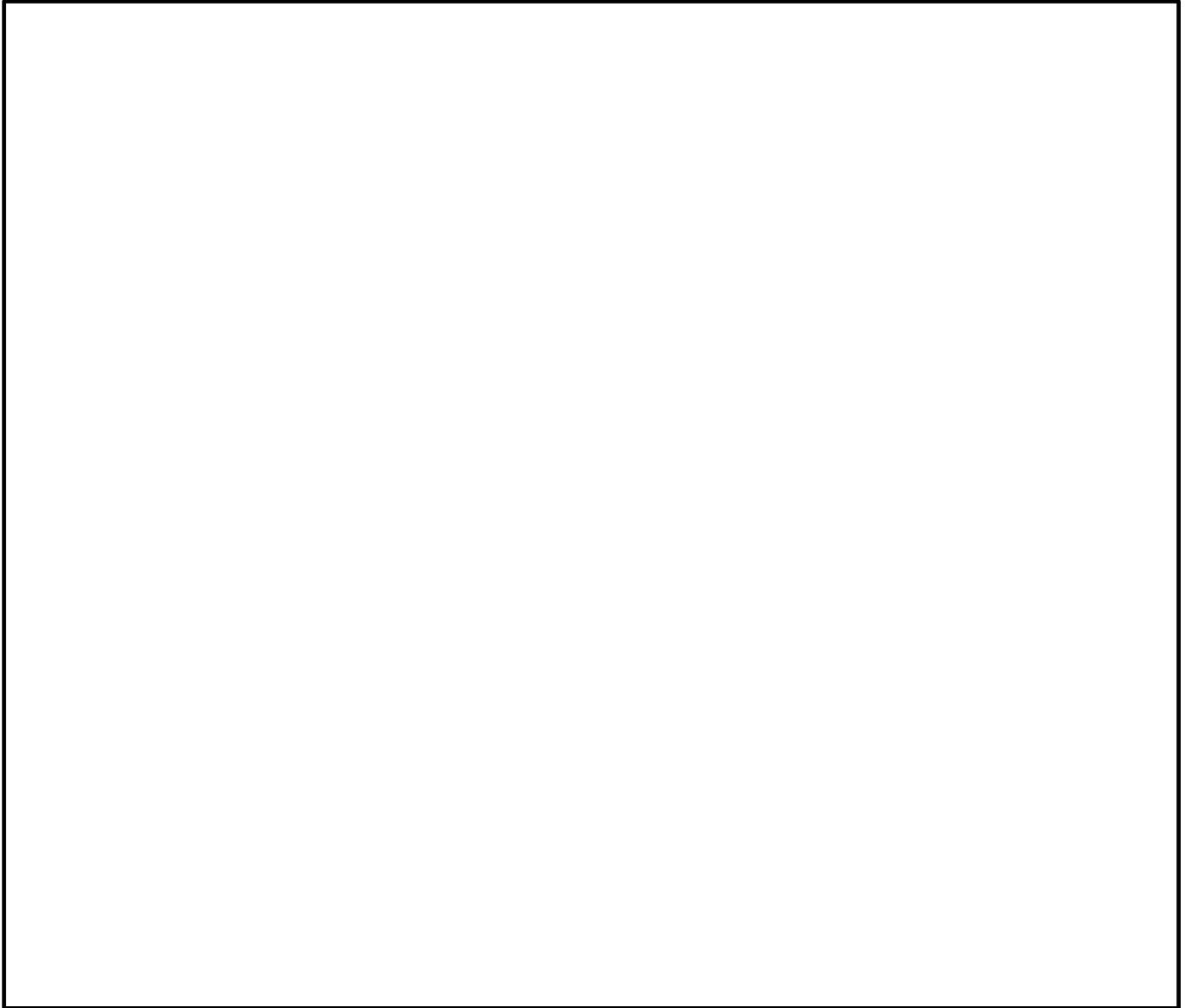
Second Iteration Wall Total Cost: \$ _____

Name:

Date:

Class:

Wall Design #2



Name:

Date:

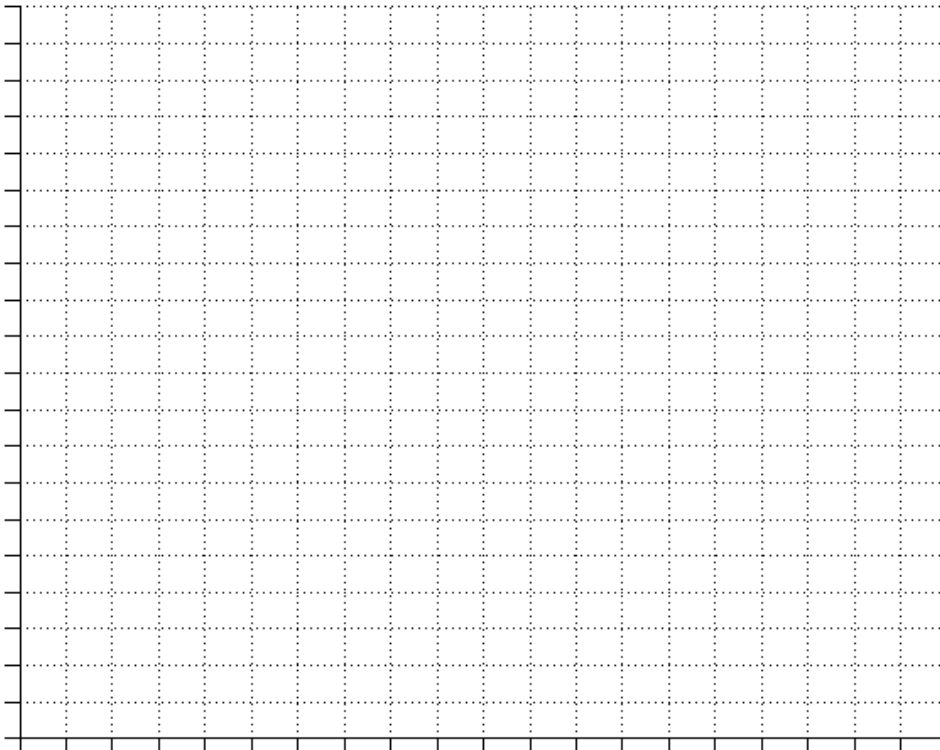
Class:

We chose to do a _____ shaped wall because:

Amount of Each Material used in wall:

- Material 1 _____ Amount:
- Material 2 _____ Amount:
- Material 3 _____ Amount:
- Material 4 _____ Amount:

Recording Sheet #2



- Draw the first line in black
- Test your wall and draw the second line in green. Graph the line on your paper. Then put sand back to original black line.
- Draw the third line in blue and test. Graph the line on your paper. Then put sand back to original black line.
- Draw the final test line in red and test. Graph the line on your paper. Then put sand back to original black line.

Now measure the amount of sand lost during each test.

1st test _____ in

2nd test _____ in

3rd test _____ in

Average= the sum of all
three tests divided by 3

Name:

Date:

Class:

BONUS: What is the average amount of sand lost during each test? _____ in

Final Data #2

1. Multiply your average inches of sand lost for all three tests by \$5.

Average inches of sand x \$5 = _____

2. Now subtract the total cost of your wall from the inches of sand lost.

Final cost of wall - cost of inches of sand lost = _____

3. What was the total cost?
-

4. How much do you have left of your original \$50?

5. Did you improve upon your design the second time, if not what do you think went wrong? If you did, what was the important change you made?
