1. INTRODUCTION

This thematic unit is on Protecting the Environment. It will incorporate reading, writing, math, and music. It can be modified for 1st and 2nd grade, but it was developed for 3rd grade.

2. BEHAVIORAL OBJECTIVES

The main objective is to help students understand the importance of taking care of our environment. The objective will be met by setting up a math activity that allows students to have hands-on experience in collecting data, creating a graph, drawing conclusions from data, formulating questions, and solving problems using a graph. The purpose of this lesson is to determine students' prior knowledge about graphs and recycling and to construct, read, and interpret a display of data to make valid predictions.

Standards: Students will be able to demonstrate the following:

1. Collect and organize data.
2. Make and label a vertical bar graph from organized data.
3. Write a title representing the main idea of a graph.
4. Draw conclusions from graphed data.
5. Formulate questions from graph.
6. Solve problems using a graph.

ANTICIPATORY SET

1. Students will be asked to sit on the floor and I will begin the discussion by showing them a book and reading aloud the title: Our World in Danger.

2. I will then tell the students, "Our world is in danger of many things, and today we will be learning about what we can do to protect our environment. We will be focusing on pollution and recycling, and we will learn how to graph while doing this".

3. Then I will ask students, "Do any of you know or have you heard about protecting the environment?" I will wait for responses and respond accordingly. If they do not know anything about the topic, I will explain the following, "Protecting means to take care of and environment is everything that surrounds us, where we live, people, plants, and animals."

4. Read the book, Our World in Danger.
5. Ask students to retell some important things that people are doing to put our world in danger. Wait for someone to talk about trash or another form of pollution.

6. Once students are guided to pollution, ask, "What other things do you know of that people do to pollute?" Have them share responses. Then ask them how we pollute at school. They will say with trash that is on the playground.

7. Tell students, "Now that we have discussed about ways people pollute we are going to go outside to do a math activity where we will learn to graph and at the same time we will be cleaning up pollution and learning what to do with it."

3. TEACHER INPUT/ MODELING

Now that we are outside, I need you to collect some trash and when you are done collecting you will sit around this grid that I have made with tape (students come back with trash and all students are sitting down, and I’ve got their attention). Let me explain that a way to help our environment and to get rid of pollution or trash is to recycle. To recycle means to reuse something that would have been thrown away or to use the material and turn it into the same thing or something else. For example, plastic water bottles can be recycled when a factory takes them and melts them and makes new plastic water bottles or makes them into a plastic trashcan. Yuma unfortunately has not started recycling plastic or glass, but they do recycle steel, aluminum, and some paper. Unlike Yuma, other cities around the country do recycle the majority of their trash. This means that people have to separate and sort out their trash so that it can be recycled. They do this by putting aside the paper, plastic, and glass. We will sort and separate the trash that we have collected. I want all of you to take a look around at all of the trash that was collected. Now can any of you tell me how it can be grouped?

Std: "Yes, it can be grouped by color"

Tchr: "Yes, it can" (validate response) "How else could you group it or sort it?"

Std: "Well, some of it is paper."

Tchr: "Great, lets put all the trash that is made out of paper on one column on the grid, like this (show students what a column is opposed to a row on the grid)."

Std: "Teacher, you said people also sorted their trash into plastic, aluminum, and glass."

Tchr: "Yes! That is correct, they also include steel, the metal that makes tin cans. Now that we know that, let’s sort the rest of our trash into those groups by putting them in the columns they belong” (wait for them to put the trash on the grid) "Now that we have the information on the grid, the next thing we need on it to make our graph is labels for our columns and rows. What information does each column give us?"

Std: "That we have plastic, paper, aluminum, and steel."
Tchr: "Yes, so let's write those words on construction paper so that we know exactly what belongs in those columns." (write those titles onto paper and place them below each column) “Now think about what else we could add to the graph so that people would easily know how much of each recyclable we had on the graph just by looking at it." (Prompt if necessary.) “What could help us on the side to know how many items we have of each?"

Std: "Numbers."

Tchr: "Yes, now let's go ahead and write those numbers on paper and set them next to each row on the graph. Now we need two more sublabels and a major title for the graph. What information did we say the numbers on the graph give us?"

Std: "Number of items." (Write that on a piece of paper and place it next to the numbers on the graph.)

Tchr: "Yes! Now what can we call paper, plastic, aluminum, glass, and steel when they will be recycled?"

Std: "Things that will be recycled"

Tchr: "Yes, that is acceptable, but the word we can use is Recyclables. Let's go ahead and label the columns with Recyclables. Here comes the easy piece and the last piece to finish our graph. Give me a title for the graph. What information is the graph giving us?"

Std: "It is telling us about the trash that we recycled from our playground."

Tchr: "That's right, so let's call it Recycled Trash from the Carver School Playground."

4. MODELING THE BEHAVIOR (incorporated in #3)

5. CHECK FOR COMPREHENSION

Ask and have students answer what we just did, ask what the chart we made is called.

This is done throughout the lesson by observing students responses to material presented to them.

6. GUIDED PRACTICE

Tell students that the graph is complete with it's information (the rash on the grid), the label for the rows (numbers), the label for the columns (plastic, glass, paper), the subtitle for the rows (number of items), the subtitle for the columns (recyclables), and the major title that describes what the whole graph is about (recyclable trash found at carver school playground). Tell students that we will go inside, and they will receive a blank grid so that we can practice making and labeling a graph with the same information that was on the graph outside.
Once inside the classroom the students will receive a grid and they will be asked to make a graph, like the one outside, in their group to reflect the information we gathered outside. I will have the same grid on the overhead to model how they will begin their graph and answer any questions. I will ask students to form vertical bars to show the number of pieces of trash that were plastic on their graph. I will walk around the room to check for understanding. I will then do the same for glass and paper. Once the vertical bars are on the graph we will go ahead and label it with numbers and words to describe what each vertical bar means (plastic, glass, aluminum, steel, and paper). I will then ask them to think of the subtitles for the rows and columns and to label them. Then they will write the main title. They will be allowed to use another name for any area as long as it makes sense with the graph. Once everyone has a complete graph, I will ask them to tell me what information the graph is giving them (ex: We found seven pieces of paper on the playground. We found more plastic than glass). I will also ask questions about the information on the graph (ex: How many more pieces of paper where found than plastic?) and students will answer.

7. CLOSURE

8. INDEPENDENT PRACTICE

Students will explain how to make and label a graph in their journal as if they were explaining it to another student.

For homework students will take home a grid to graph information given by teacher and they will answer questions about the graph.

To extend the idea of recycling. The materials collected will be taken to the available recycling facilities and the remainder of the trash will be used for a recycled art project or thrown away if it cannot be recycled.

9. ASSESSMENT

Students will be assessed after practicing with a horizontal bar graph using the same procedures as the in class review graph. Students will be provided with a homework sheet.

10. MATERIALS

Book: Our World In Danger, masking tape, construction paper, and markers.

11. MODIFICATIONS FOR STUDENTS WITH DISABILITIES

Allow students the opportunity to show what they have learned in a different way, through art, verbally to teacher or to another student, etc. If necessary, have student work on and master each objective individually over a longer period of time.

12. TECHNOLOGY INTEGRATION

Extend the lesson so that students have the opportunity to research recycle centers in their community. Students may want to write local community leaders to discuss the benefits of recycling.

13. MECHANICS