**Title of Lesson:** Act It Out!

**Topic:** Graphs, Recycling, Conservation, and Pollution

**Subject Area/s:** Math and Science

**Grade Level:** Third Grade

**Time Frame:** 50 minutes

**Description or Outcome Statement:**

The students will be learning how to use the different types of graphs to categorize data. The students will learn the impact conservation, recycling, and pollution can have on the environment.

**Georgia Performance Standards/Common Core State Standards:**

**MCC3.MD.3** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.

**S3L2**. Students will recognize the effects of pollution and humans on the environment.

a. Explain the effects of pollution (such as littering) to the habitats of plants and animals.

b. Identify ways to protect the environment.

• Conservation of resources

• Recycling of materials

**VA3MC.3** Selects and uses subject matter, symbols, and ideas to communicate meaning.

**Specific Lesson Objective:**

* 1. Students will be able to demonstrate their understanding of the effects of recycling, conservation and pollution.
  2. Students can communicate ideas on how to better the environment and community.
  3. Students will learn that they can use graphs to display data.
  4. Students are able to categorize items into the proper categories.
  5. Students will be able to discuss, in their small groups, how to construct data into a bar graph, line plot, frequency chart or a tally chart.

**Language Objective:** Students will present information on their scenario by articulating proper speaking skills and using descriptive details about the results of their graph.

**Essential Question(s):**

* How does pollution effect the environment?
* How is the land/air/water harmed by pollution?
* How can different graphs be used to organize and collect data?
* How can graphs be used to collect data?
* How does recycling help to conserve our natural resources?

**Materials Needed:**

* + Water pollution Brain Pop video from brainpop.com
  + SmartBoard in the room to demonstrate/review the different types of graphs on a PowerPoint presentation provided by the teacher
  + Index card with a picture of a recyclable item (1 per student)
  + 6 poster boards (1 for whole group, 5 for groups)
  + A instruction sheet (1 per group) posted below
  + A scenario will be given to each group (1 per group). The list of all the scenarios are posted below
  + Markers , crayons and pencils for each group

**Directions for Small Groups:** In your small groups, complete the work in THIS order:

* **Step 1:** Read your scenario as a group
* **Step 2**: Know and talk about what type of graph you were assigned
* **Step 3**: Collect your data to create the graph
* **Step 4**: Separate the data into the categories
* **Step 5**: Come up with a symbol that you could use on your graph for the objects in your scenario.
* **Step 5**: Complete your graph using the symbols you created
* **Step 6**: Give your graph a title
* **Step 7:** Make sure you label the axis’ on your graph

**BE PREPARED TO EXPLAIN THE RESULTS OF YOUR GRAPH!**

Once all of these steps are done, complete the next few steps to get ready to ACT OUT your scenario.

* **Step 8:** Each person in the group gets a role from your scenario
* **Step 9:** Make sure when you are acting out, the class knows you are acting out your group’s topic.
* **Step 10:** Practice your scenario.
* A scenario on a flashcard will be given to each group (only one scenario per group). The list of all the scenarios are posted below:

**Group 1: Water Pollution**

* Water Pollution Definition: When bodies of water (lakes, rivers, oceans) get contaminated by human activities.

\*Use a **BAR GRAPH** to represent the following problem:

* Scenario: Oh no! Captain Jack was sailing down the Hudson River. He and his shipmates came across a part of the river that was polluted with 8 water bottles, 5 french fry containers, and 9 aluminum cans.

**Group 2: Air Pollution**

* Air Pollution Definition: When gases, dust particles, fumes, or odors are released into the atmosphere in a way that makes it harmful to humans, animals and plants.

\*Use a **FREQUENCY CHART** to show this problem:

* Scenario: Emily and her friends want to stop air pollution in their town. They found out that, in their small town, there are 7 cars that release gas in

**Scenarios**

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**Group 2: Air Pollution**

* Air Pollution Definition: When gases, dust particles, fumes, or odors are released into the atmosphere in a way that makes it harmful to humans, animals and plants.

\*Use a **TALLY CHART** to show this problem:

* Scenario: Emily and her friends want to stop air pollution in their town. They found out that, in their small town, there are 7 cars that release gas into the environment, 3 factories releasing chemicals, and 9 spilled containers of laundry detergent.

**Group 3: Land Pollution**

* Land Pollution Definition: Destruction of earth’s land surfaces because of human activity that misuse land resources.

\*Use a **BAR GRAPH** to show this problem:

* Scenario: Ryan and his family want to make their neighborhood a cleaner place. In their neighborhood, they pick up 9 bags of trash, 7 broken cell phones on the side of the road, and 8 old tires.

**Group 4: Conservation**

* Conservation Definition: The protection of things found in nature and the protection of our resources.

\*Use a **TALLY CHART** to show this problem:

* Scenario: Oh no! The Roberts’ family is having trouble conserving energy. They leave 6 faucets running, 9 fans running, and 7 bedroom lights on all the time.

**Group 5: Recycling**

* Recycling Definition: When you take materials from old, discarded things and make new products from them.

\*Use a **LINE PLOT** to show this problem:

* Scenario: Mrs. Katy and her third grade class decided they wanted to go on a recycling nature walk. On their walk around the school, students in the class found 8 water bottles, 5 aluminum cans, and 6 pieces of paper.

**Technology:** Technology is integrated within this lesson by the use of the Smart Board. The teacher will use the Smart Board during the lesson to demonstrate a bar graph, a line plot, a tally chart, for the students to identify.

**Procedures:** 45 minutes

1. **Motivation:** With the students gathered together on the carpet in the front of the room, the teacher will read the book *Michael Recycle* to the class. After the teacher reads the book to the class, she will then begin a short discussion on recycling and conservation of resources along with the different types of pollution.
2. **Statement of Purpose:** The teacher will explain to the students the importance of representing data through bar graphs, line plots, tally charts, and frequency charts, and how it is important to represent and organize data so it is easier to read, examine, and understand. The teacher will also explain to the students the importance of conserving resources and how recycling can heavily impact and help our community.
3. **Academic Language:**

* Recycling
* Conservation
* Pollution
* Air pollution
* Water pollution
* Land pollution
* Bar Graph
* Line plot
* Tally Chart

1. **Body of the Lesson:**

* **Teacher Modeling or Demonstration:** On the Smart Board, the teacher will present an example of a bar graph to show the students the different types of graphs that they will be using to complete their small group activity. She will then show a line plot and ask the students to identify the graph. She will then show a tally chart and ask the students to recognize it. If need be, the teacher will answer questions or any misconceptions about the graphs before moving onto the next stage of the lesson.
* **Teacher Input of Content/Information To Be Presented**: The content that will be taught covers bar graphs, tally charts, frequency charts, and line plots. This content will be taught throughout the performance of the student scenarios.
* **Check for Understanding:** After the students recognize the variety of graphs shown on the Smart Board, the teacher will gather the class for a group discussion. The teacher will begin by asking the students the following questions:

**Higher Order Thinking Questions:**

* + - Why do we categorize our data into a graph or chart? (Analyzing)
    - Describe the difference between a bar graph and a tally chart. (Evaluation)
* **Guided Practice or Activity:** Each student will be given an index card with a picture on it. Each picture indicates a recyclable item. A student will either have an index card with a picture of glass, plastic, aluminum, or paper on it. The teacher will draw a large bar graph on the board or on chart paper in the front of the room. This bar graph should be within the students reach. The teacher will read the scenario that is projected on the Smart Board for the entire class to see. As a class, the students will come up one at a time and categorize their object indicated on their index card. Once the entire class has placed their index card onto the graph, the teacher will begin a discussion with the class about the results. The teacher will then explain that making a bar graph is a very important way to categorize data. The teacher will ask her students, “What other situations will we have to use a graph to categorize our data?” This will lead the class into the next stage of the lesson. Once the teacher has completed the bar graph on the chart paper with the class as a whole group, the teacher will then explain the students’ instructions for their small group activity.
* **Independent Practice or Activity:** In their small groups, the students will be given a scenario. Using the scenario and their use of symbols, the students will categorize their data into their assigned graph (bar graph, line plot, or tally chart). The students will role-play the scenario in front of the class. The students’ will be given the instruction sheet (posted below) from the materials list to complete their work in the small group.

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| **Literacy Listening Component:** *Michael Recycle written by Ellie Bethel*   * **Before reading a selection—**Build background knowledge with a overview of vocabulary words they might hear in the story. * **During reading—** The teacher will read the story to the class as a whole group. * **After reading—** After reading the book as a large group, the teacher will ask for students to respond in a personal way by raising hands. She will ask them:   1. What did you think of the story?   2. What did you learn from this book?   3. What new words did we see in the book?   4. In what ways could we recycle… this chair? This white board? This shirt? |

**Assessment:** The teacher will assess the students, as a small group, by using the rubric of expected outcomes that is attached at the end of this lesson plan.

**Closure:** The teacher will tell the students that they are now going to share their groups’ graph and act out their scenario. Each group will take turns showing their graph to the class, and acting out their scenario.

**Accommodations:** There are no students in the class that are diagnosed with learning impairments. For the students who have trouble staying on task and following directions, they will be redirected and their behavior will be noted.

**Re teaching:** For students who did not successfully meet the Georgia Performance Standard(s) identified in this lesson, during math centers, those students will be provided a bar graph on a piece of paper. The students are to collect data on their classmates. The data will include each of their peer’s favorite flavor skittles. Once the student has completed the data collection process, they will model and display their results in the provided bar graph template. At the bottom of this bar graph template paper, there will be a few short prompts for the students to answer based on their results. These questions will include: What was the most popular flavor amongst the class?

**Extensions:** For the students who successfully met the standards, after the lesson, students can create a poster, flyer or a persuasive letter about what we can do to help out in our community. They must include why it is important to recycle, prevent pollution, or conserve resources. They may either choose to do this assignment on recycling, conservation, or pollution. Once they are done, they can present their poster, flyer, or letter to the class. They can also share what they have learned with other third grade classes.

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| Graph Activity Rubric  Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **1.Graph is neat 3 2 1**  - Lines are straight  - Labels are legible  - Coloring is neat |
| **2.Graph is complete 3 2 1**  - graph is titled  - graph is an effective size  - color coding is used |
| **3.Graph is charted correctly 3 2 1**  **-**  Points are charted correctly according to their tally marks  - Bars are constructed correctly |
| **4. Problem solved using steps 3 2 1**  - Shows all work  - Uses the graph to answer problem |
| **5.Effects of pollution 3 2 1**  **-** Participates in class discussion about pollution  - Understands vocabulary terms and uses them in discussion or during activities |
| **6.Protecting the environment 3 2 1**  **-** Able to correctly place recycled item into correct category  - Able to define or give examples of conservation through activity |