

LESSON PLAN TEMPLATE

Lesson Title	Visualizing and Interpreting Community Data: A Study of Graphs and Plots
Learning Area/s	Mathematics
Name of Teacher/s	DepED Tambayan PH (Visit www.depedtambayanph.net for more downloads.)
Grade Level and Section	Grade 7
No. of Sessions	4 Sessions
References	None specified
Declaration of AI use	This lesson plan was co-created using Gemini AI to assist with unpacking competencies into a 4-session learning design, structuring activities, and assessment formulation.

Intentions.

Meaningful learning experiences are anchored in how we frame them. Start by deciding what you want learners to master by the end of the lesson – keep it clear and simple.

Learning Competency and Curriculum Standards:	Learning Competency: Week 8 Data and Probability • Use appropriate graphs to represent organized data: pie graph, bar graph, line graph, and stem - and - leaf plot. • Interpret statistical graphs. Content Standards: The learners should have knowledge and understanding of: • conversion of units of measure • volume of square and rectangular pyramids, and cylinders • sets and subsets, and the union and intersection of sets using Venn diagrams • subset of real numbers • data collection and sampling techniques, and the presentation of data in appropriate tables and graphs • interpretation of statistical graphs • the set of integers, and comparing and ordering integers Performance Standards: By the end of the term, the learners are able to: • convert units of measure from different systems of measure. • find the volume of square and rectangular pyramids, and the volume of cylinders. • describe sets and their subsets, and the union and intersection of sets. • illustrates sets and subsets, and union and intersection of sets, using Venn diagrams. • collect data, and organize data in a frequency distribution table. • represent and interpret data in different types of graphs. • compare and order
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	integers, including through the use of the number line.			
	Session 1	Session 2	Session 3	Session 4
Learning Objectives:	By the end of the session, learners should be able to: - Identify the components and uses of bar graphs and pie graphs in representing categorical data. - Construct a bar graph and a pie graph based on a frequency distribution table of local community preferences. - Interpret data presented in bar and pie graphs to draw simple conclusions.	By the end of the session, learners should be able to: - Describe the characteristics and functions of a line graph in showing trends over time. - Plot data points on a coordinate system to create a line graph representing local environmental changes. - Analyze trends (increase, decrease, or stability) depicted in line graphs.	By the end of the session, learners should be able to: - Organize a large set of numerical data using a stem-and-leaf plot. - Explain how a stem-and-leaf plot preserves individual data values while showing distribution. - Compare data sets using the stem-and-leaf method.	By the end of the session, learners should be able to: - Select the most appropriate graph type for a given set of data and justify the choice. - Synthesize findings from various graphs to provide a comprehensive report on a local issue. - Demonstrate critical thinking by identifying potential biases or misrepresentations in graphs.
Learner Context:	Learners in this Grade 7 section show high engagement when activities involve their personal preferences or local culture. A significant number of students are visual learners who benefit from color-coded charts. However, some learners struggle with the mathematical	The class responds well to real-world issues like climate change and price hikes. Most students can plot points on a Cartesian plane but often forget to connect the dots or label the horizontal axis with time intervals. A few learners with dyscalculia may need pre-labeled axes to focus on	Learners have a strong grasp of place value (tens and ones), which is a prerequisite for this topic. However, they tend to be disorganized when handling large sets of raw numbers. They enjoy competitive, game-like activities. A few students with ADHD benefit from short, segmented	At this stage, learners are becoming more confident in choosing graph types but still need practice in 'justification' (the 'why'). Higher-performing students are ready for complex interpretation, while others still need guidance in synthesizing information from

	conversion of frequencies into percentages and degrees for pie graphs. There is a small group of students who require extra time when using drawing tools like protractors and rulers due to motor skill developmental variations.	the trend analysis rather than the mechanical plotting.	tasks where they 'sort' physical number cards.	two different graphs. Collaborative groups are structured to pair high-performers with those needing support.
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Learning Experience.

A learning experience is like a thoughtfully designed journey. Each activity and interaction builds towards meaningful understanding and growth. Identify activities and interactions to help learners gain knowledge, skills, or understanding in a purposeful way.

Pre-Lesson:	Review & Motivation: - Quick poll: 'What is your favorite local snack (kakanin)?' (e.g., Bibingka, Puto, Kutsinta, Suman). - Tally the results on the board to create a Frequency Distribution Table (FDT). - Active Retrieval: Ask students to recall how they previously organized data into	Active Retrieval: - Display a series of dots on a grid. Ask students to 'connect the dots' in chronological order. - Short discussion: 'How has the price of a kilo of rice changed over the last 5 months?'	Game (Sorting Race): - Give each group 20 cards with 2-digit numbers (e.g., ages of celebrities or basketball scores). - Challenge: 'Sort these from least to greatest in 60 seconds!' - Relate this to the need for organized data representation.	Retrieval Challenge: 'Flash Round': Teacher shows a data scenario (e.g., 'Gold medals won by PH in 5 years'), and students must hold up a card saying 'Line', 'Bar', 'Pie', or 'Stem-and-Leaf'.
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	tables.			
Flow:	1. Scaffolding (Direct Instruction): Explain the parts of a bar graph (axes, labels, scale) and a pie graph (sectors, percentages). Use a slide presentation to show examples of 'Barangay Waste Management' data. 2. Guided Practice (Social Learning): In pairs, students use the 'Kakanin Poll' data to determine the appropriate scale for a bar graph. The teacher circulates to check for understanding (CFU) on plotting the heights of the bars. 3. Active Learning (Hands-on): Groups are tasked to convert the frequencies into percentages to create a 'Snack Preference' pie graph. Provide a 'Cheat Sheet' for percentage-to-degree conversion for those struggling with calculations. 4. Analysis: Ask: 'Which snack is the most popular? How many more students prefer Bibingka over Puto?'	1. Modeling: Demonstrate plotting the 'Average Monthly Rainfall in the Philippines' using a line graph. Emphasize that the x-axis represents time (months). 2. Scaffolding (CFU): Ask students: 'What does a steep upward line indicate?' vs. 'What does a flat line mean?' Use 'Think-Pair-Share' for these questions. 3. Collaborative Activity: Groups are given data on 'Weekly Attendance in School' or 'Local Temperature Readings'. They must construct a line graph on manila paper. 4. Social Learning: Gallery Walk. Groups move to other tables to interpret the trend of their classmates' graphs. They must write one 'prediction' for the next time interval based on the trend.	1. Direct Instruction: Introduce the 'Stem' (tens digit) and 'Leaf' (ones digit). Show how to organize raw scores into a plot. Use student height data (in cm) as an example. 2. Scaffolding: Provide a template with the 'Stem' column already filled. Students fill in the 'Leaves' from a set of 'Mathematics Quiz Scores'. 3. Active Learning: Students collect data on the 'Number of siblings' or 'Age of cousins' from their classmates (social interaction). They then create an individual stem-and-leaf plot. 4. CFU: Ask: 'Looking at your plot, what is the most common age range?' 'What is the highest and lowest value?'	1. Social Learning (The 'Barangay Analyst' Project): Groups are given a 'Community Profile Portfolio' containing raw data on: (a) Source of Income (Categorical), (b) Monthly Income Trends (Time-series), and (c) Ages of Residents (Numerical). 2. Collaborative Construction: Each group must decide which graph (Pie, Bar, Line, or Stem-and-Leaf) fits each data set. They construct the graphs and write a 3-sentence interpretation for each. 3. Presentation: Groups present their 'Community Profile' to the class. Peer reviewers ask: 'Why did you choose a pie graph for the source of income?' 4. Synthesis: Discussion on 'Misleading Graphs'. Show a graph with an inconsistent scale. Ask: 'How does this graph lie to us?'
Learning	Laptop/Proj	Slide	Number	Data

Resources:	• Projector • Slide Presentation on Bar and Pie Graphs • Protractors, Rulers, and Compass • Graphing Paper	Presentation on Line Graphs • Manila Paper and Markers • Local Weather Data (PAGASA-inspired)	Cards • Stem-and-Leaf Templates • Smart TV for visual demonstration	Portfolios (Printed) • Art materials for posters • Projector for 'Misleading Graphs' examples
Opportunities for integration:	Integration: Araling Panlipunan (Community Economics) and TLE (Food Literacy). The data reflects local production and consumer habits.	Integration: Science (Meteorology/Climate Change) and English (Predicting outcomes/Inference).	Integration: Physical Education (tracking fitness scores/heights) and Values Education (learning about classmates' backgrounds).	Integration: Media Literacy (identifying biased data) and Araling Panlipunan (Community Development).
Assessment. Assessments reveal what learners have gained and what they still need help with. These are helpful in providing you with information to guide your future instruction throughout the entire session.				
Formative Assessment:	Assessment: • Exit Ticket: Provide a printed bar graph of 'Daily Household Water Usage' and ask 3 interpretation questions. • Check individual graph construction for accuracy in scaling and labeling.	Assessment: • Peer Evaluation: Use a simple rubric to grade the accuracy and neatness of the group's line graph. • Short Quiz: Interpreting a line graph showing 'Philippine Population Growth'.	Assessment: • Individual Work: Organize 25 raw scores of a recent 'Health Check-up Weight' data into a stem-and-leaf plot. • Observation checklist: Are students ordering the leaves correctly?	Assessment: • Performance Task: The 'Community Profile' poster and presentation serve as the summative evidence for the week. • Rubric-based grading focusing on: Graph Choice, Accuracy, and Quality of Interpretation.

Ways Forward.

Meaningful learning can also happen beyond the classroom – for both the learners and the teacher. Pause and reflect on what happened today.

Extended learning opportunities:	Extension: Ask students to look for a pie graph in a newspaper or online news site (like Rappler or GMA News) and bring a sketch or print-out for the next day.	Extension: Interview a family member about their monthly electric bill for the last 3 months and record the values for tomorrow's review.	Extension: Create a stem-and-leaf plot for the ages of everyone living in your immediate neighborhood (at least 15 people).	Extension: Write a short letter to the Barangay Captain suggesting a program based on the findings of their 'Community Profile' (e.g., if many are unemployed, suggest a livelihood program).
Reflections:	Reflective Prompts: • Which graph was easier to draw? Why? • How does the scale of a bar graph change our perception of the data?	Reflective Prompts: • Why is a line graph better than a bar graph for showing temperature changes? • Can we use a line graph for 'Favorite Colors'? Why or why not?	Reflective Prompts: • How is a stem-and-leaf plot different from a frequency table? • When would this plot be more useful than a bar graph?	Reflective Prompts: • How can statistics help our community? • What was the most challenging graph to interpret this week?