

Step by step guide_Mode

Pre-Class Preparation

- Prepare group assignments (4-5 students per group).
- Have chart paper and colored markers ready.
- Prepare tally mark examples on cards.
- Write anchor activity data on the board or prepare handouts.
- Prepare worked examples on cards or slides.
- Have physical objects (colored blocks, cards) for demonstrations.

Phase 1: Problem-Solving and Discovery (15 minutes)

[0-2 minutes] Introduction

[SAY] "Good morning! Today we learn about the MODE - the most frequently occurring value!"

[SAY] "You already know MEAN and MEDIAN. Mode is different - it's about what happens MOST OFTEN."

[ASK] "If I ask 'What's the most popular subject in this class?' - that's finding the MODE!"

[2-3 minutes] Group Formation

[DO] Divide students into groups of 4-5.

[DO] Distribute chart paper and colored markers.

[3-5 minutes] Explain the Activity

[SAY] "Your class needs to schedule a revision session. Students voted for their preferred time."

[WRITE on board] "Afternoon, Evening, Afternoon, Morning, Afternoon, Evening, Morning, Afternoon, Evening, Morning, morning, Afternoon, Evening, Morning, Afternoon, Evening, Morning, Afternoon, Evening, Morning"

[SAY] "Your tasks: (a) Make a frequency table, (b) Find the mode, (c) Decide when to hold revision, (d) Explain why mode matters. You have 10 minutes."

[5-13 minutes] Group Work

[DO] Circulate among groups, observing their counting strategies.

[LISTEN] to how they organize the data.

[ASK] "How are you counting each time preference?"

[ASK] "Which time appears most often?"

[DO] Guide groups struggling with tallying.

[ASK] "Why should the class choose the most preferred time?"

[13-15 minutes] Group Sharing

[SAY] "Group 1, what frequency table did you create?"

[LISTEN] Students present their table:

Morning: 8 votes

Afternoon: 8 votes

Evening: 4 votes

[WRITE] the frequency table on the board.

[SAY] "Group 2, what is the mode?"

[LISTEN] Students say: Morning and Afternoon (both appear 8 times)

[SAY] "Excellent! This is called BIMODAL - two modes!"

[ASK] "Why is mode important for this decision?"

[LISTEN] Students explain: It shows what most students prefer.

Phase 2: Structured Instruction (10 minutes)

[15-17 minutes] Define Mode

[SAY] "The MODE is the value that occurs MOST FREQUENTLY."

[WRITE] "Mode = Most Frequent Value"

[SAY] "No calculation needed - just count and compare!"

[17-20 minutes] Four Possible Cases

[SAY] "Mode is special - a dataset can have different mode situations:"

[WRITE] "Case 1: One mode (UNIMODAL)"

[EXAMPLE] "Dataset: 2, 3, 2, 5, 2, 7 → Mode = 2 (appears 3 times)"

[WRITE] "Case 2: Two modes (BIMODAL)"

[EXAMPLE] "Dataset: 5, 6, 5, 7, 6, 8 → Modes = 5 and 6 (both appear 2 times)"

[SAY] "Just like our revision time example!"

[WRITE] "Case 3: More than two modes (MULTIMODAL)"

[EXAMPLE] "Dataset: 1, 2, 3, 1, 2, 3 → Modes = 1, 2, and 3"

[WRITE] "Case 4: NO MODE"

[EXAMPLE] "Dataset: 75, 60, 85, 65, 90 → No mode (all appear once)"

[20-23 minutes] Key Characteristics

[SAY] "Mode is EASY - just count!"

[SAY] "Mode works with WORDS too - favorite colors, preferred subjects!"

[SAY] "Mean and median need numbers, but mode works with categories!"

[23-25 minutes] Real-World Applications

[SAY] "Stores use mode to decide which products to stock more of."

[SAY] "Shoe manufacturers use mode to know which sizes are most common."

[SAY] "Schools use mode to schedule popular elective times."

Phase 3: Practice and Application (15 minutes)

[25-32 minutes] Worked Example 3.1.31 (Goals Scored)

[SAY] "Example: Goals scored in 20 matches: 2, 3, 1, 4, 2, 5, 3, 2, 4, 1, 3, 2, 4, 5, 3, 2, 1, 4, 3, 2"

[DO] Work through together:

[WRITE] "Step 1: Count frequencies"

[DO] Count together: 1→3 times, 2→6 times, 3→5 times, 4→4 times, 5→2 times

[WRITE] "Step 2: Find highest frequency"

[SAY] "Which number appears most? 2 appears 6 times!"

[WRITE] "Mode = 2 goals"

[ASK] "What does mode = 2 tell us?"

[LISTEN] Students explain: The team most commonly scores 2 goals.

[32-37 minutes] Worked Example 3.1.32 (Study Hours - Bimodal)

[SAY] "Example: Study hours in a week: 5, 6, 7, 5, 8, 6, 7, 5, 6, 8"

[DO] Guide students:

[WRITE] "Step 1: Count frequencies"

[DO] Count together: 5→3 times, 6→3 times, 7→2 times, 8→2 times

[WRITE] "Step 2: Find highest frequency"

[SAY] "Both 5 and 6 appear 3 times - same highest frequency!"

[WRITE] "Bimodal: Modes = 5 and 6 hours"

[ASK] "Is it okay to have two modes?"

[LISTEN] Students confirm: Yes, when two values tie for most frequent.

Phase 4: Assessment (5 minutes)

[37-40 minutes] Exit Ticket Review

[SAY] "Question 1: Pets owned: 0, 1, 2, 3, 1, 0, 2, 4, 1, 3"

[DO] Quick check: Count → 0(2), 1(3), 2(2), 3(2), 4(1) → Mode = 1

[SAY] "Question 2: Books read: 2, 3, 1, 4, 2, 5, 3, 2, 4, 1, 3, 2, 4, 5, 3"

[DO] Count → 1(2), 2(4), 3(4), 4(3), 5(2) → Bimodal: 2 and 3

[SAY] "Question 4: Test scores: 75, 60, 85, 65, 90, 80, 50, 45, 70, 95"

[DO] All appear once → No mode!

[SAY] "Remember: Mode = most frequent. Can be one, two, many, or none!"

[DO] Collect exit tickets.

Teaching Tips

- Emphasize "most frequent" - use tally marks for visual counting.
- Connect to everyday language: "What's most popular?" = mode
- Stress that mode can be used with words/categories (favorite color, preferred time).
- Highlight all four cases: unimodal, bimodal, multimodal, no mode.
- Use Kenyan contexts: matatu routes, popular foods, common names.
- Show that mode is the EASIEST measure - no calculation!

Common Student Errors to Watch For

- Confusing mode with mean or median.
- Thinking there's always a mode (forgetting "no mode" case).
- Not recognizing bimodal or multimodal datasets.

- Choosing the highest VALUE instead of most FREQUENT value.
- Not counting frequencies carefully - encourage tally marks.
- Thinking mode must be a number (forgetting it works with categories).