Step by step guide_Mode (Grouped)

Pre-Class Preparation

- Prepare group assignments (4-5 students per group).
- Have chart paper and colored markers ready.
- Prepare highlighters for each group.
- Write anchor activity table on the board or prepare handouts.
- Prepare worked examples on cards or slides.
- Have real-world examples ready (shoe sizes, ages, prices).
- Prepare comparison chart for ungrouped vs grouped mode.

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

[0-2 minutes] Introduction

[SAY] "Good morning! Remember mode for ungrouped data? We found the value that appears most often."

[ASK] "For grouped data, can we find the exact value that appears most?"

[LISTEN] Students say: No, we only have intervals.

[SAY] "Right! So we find the MODAL CLASS - the interval with the most data points. Let's discover it!"

[2-3 minutes] Group Formation

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

[DO] Distribute chart paper, markers, and highlighters.

[3-5 minutes] Explain the Activity

[SAY] "Here's pocket money data grouped into intervals."

[DO] Display or write the pocket money table on the board.

[SAY] "Task 1: Which group has the highest number of students?"

[SAY] "Task 2: What is the modal class? You have 10 minutes."

[5-13 minutes] Group Work

[DO] Circulate among groups, observing their strategies.

[ASK] "What are you looking for in the table?"

[LISTEN] Students say: The highest frequency.

[DO] Encourage students to highlight or circle the highest frequency.

[ASK] "Which number is the largest in the Frequency column?"

[LISTEN] Students identify: 22

[ASK] "Which interval has frequency 22?"

[LISTEN] Students find: 300–399

[ASK] "What does this tell us about pocket money?"

[LISTEN] Students explain: Most students get between 300-399 Ksh.

[13-15 minutes] Group Sharing

[SAY] "Group 1, which group has the highest number of students?"

[LISTEN] Students share: 300–399 has 22 students.

[WRITE] "Highest frequency: 22" on the board.

[SAY] "Group 2, what is the modal class?"

[LISTEN] Students say: 300–399 Ksh

[WRITE] "Modal class: 300–399 Ksh" on the board.

[SAY] "Excellent! The modal class is the interval with the highest frequency!"

Phase 2: Structured Instruction (10 minutes)

[15-17 minutes] Modal Class Definition

[SAY] "For grouped data, the Modal Class is the class interval with the highest frequency."

[WRITE] "Modal Class = Interval with highest frequency"

[SAY] "It represents where most of the data points are."

[17-20 minutes] Important Characteristics

[SAY] "Five important things about modal class:"

[WRITE] "1. No calculation needed - just look for highest frequency"

[SAY] "Unlike mean and median, modal class is EASY! No formula!"

[WRITE] "2. Modal class is an INTERVAL, not a single number"

[SAY] "We say '300–399', not '350' or '22'."

[WRITE] "3. Represents the most common range"

[SAY] "This is where the majority of data falls."

[WRITE] "4. Can have multiple modal classes (bimodal, multimodal)"

[SAY] "If two intervals tie for highest frequency, both are modal classes."

[WRITE] "5. Can have no modal class if all frequencies are equal"

[20-22 minutes] Step-by-Step Process

[SAY] "Here are the 5 simple steps:"

[WRITE] "Step 1: Read the frequency column"

[WRITE] "Step 2: Identify the highest frequency"

[WRITE] "Step 3: Find the corresponding interval"

[WRITE] "Step 4: State the modal class as an interval"

[WRITE] "Step 5: Interpret - what does this mean?"

[22-25 minutes] Ungrouped vs Grouped Mode

[SAY] "How is this different from ungrouped mode?"

[WRITE] "Ungrouped: Specific value (e.g., '5 appears 8 times')"

[WRITE] "Grouped: Interval (e.g., '300–399 has 22 students')"

[SAY] "Same idea - most common - but different format!"

Phase 3: Practice and Application (15 minutes)

[25-40 minutes] Worked Example 3.1.61 (Employee Salaries)

[SAY] "Example: Company salaries. Find the modal class."

[DO] Display the employee salaries table.

[SAY] "Step 1: Read the frequency column."

[DO] Point to "Number of Employees" column.

[SAY] "The frequencies are: 3, 5, 7, 10, 9, 6, 5"

[SAY] "Step 2: Identify the highest frequency."

[ASK] "Which number is the largest?"

[LISTEN] Students say: 10

[DO] Highlight or circle 10 in the table.

[SAY] "Step 3: Find the corresponding interval."

[ASK] "Which salary range has 10 employees?"

[LISTEN] Students find: 50,000–59,999

[SAY] "Step 4: State the modal class."

[WRITE] "Modal class: 50,000–59,999 KES"

[SAY] "Step 5: Interpret."

[ASK] "What does this tell us about the company?"

[LISTEN] Students explain: Most employees earn between 50,000-59,999 KES.

[SAY] "Exactly! This is the most common salary range."

Phase 4: Assessment (5 minutes)

[40-45 minutes] Exit Ticket Review

[SAY] "Question 1: Shoe sizes at Bata shop."

[DO] Quick guide: Frequencies are 15, 45, 30, 10

[DO] Highest frequency: 45

[DO] Modal class: 5-7

[SAY] "Most shoes sold were sizes 5-7 (children/youth sizes)."

[SAY] "Question 2: Daily rainfall in Nyeri."

[DO] Quick guide: Frequencies are 10, 4, 12, 3, 1

[DO] Highest frequency: 12

[DO] Modal class: 10-14 mm

[SAY] "Most days had rainfall between 10-14 mm."

[SAY] "Remember: Modal class is an INTERVAL, not a single number!"

[DO] Collect exit tickets.

Teaching Tips

- Emphasize simplicity - modal class is the easiest measure to find.
- Use highlighting - have students highlight or circle highest frequency.
- Always interpret - connect to real-world meaning.
- Compare with ungrouped mode - show the difference clearly.
- Use visual aids - bar charts make modal class obvious.
- Practice with real data students understand (shoe sizes, ages, prices).
- Discuss bimodal cases - what does it mean when two intervals tie?
- Connect to business decisions - how would a shop owner use modal class?
- Stress that modal class is an interval, never a single number.

Common Student Errors to Watch For

- Giving a single number instead of an interval (e.g., saying "350" instead of "300–399").
- Confusing frequency with the interval (e.g., saying "modal class is 22").
- Choosing the interval with largest values instead of highest frequency.
- Not recognizing bimodal cases when two intervals have the same highest frequency.
- Thinking modal class needs calculation (it's just observation!).
- Not interpreting the result in context.
- Confusing modal class with mean or median.