

Step by step guide_Methods of Data Collection

Pre-Class Preparation

- Prepare group assignments (3-4 students per group).
- Print anchor activity worksheets with television viewing data.
- Prepare chart paper and markers for creating tables.
- Have examples of different data collection tools (sample questionnaires, observation checklists).
- Write the five data collection methods on the board or prepare slides.
- Prepare worked examples on cards or slides.
- Have real-world scenarios ready for discussion.

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

[0-2 minutes] Introduction

[SAY] "Good morning, class! Yesterday we learned about sources of data. Today we will learn about methods of data collection - the different ways we can gather information."

[SAY] "Imagine you want to know something - like how many hours students watch TV, or what their favorite food is. How would you find out? That's what we'll explore today!"

[ASK] "Can anyone think of a way to collect information from people?"

[LISTEN] to student responses and acknowledge their ideas.

[2-3 minutes] Group Formation and Material Distribution

[DO] Divide students into groups of 3-4.

[DO] Distribute anchor activity worksheets and chart paper.

[SAY] "Each group will work with data about television viewing habits."

[3-5 minutes] Explain the Activity

[SAY] "You have data showing how many hours people watch TV per week. Your tasks are: create a table to organize this data, identify what method was used to collect it, and think of other questions we could ask."

[WRITE on board] The television viewing data and the four tasks.

[SAY] "You have 10 minutes to work on these tasks. Create your table on the chart paper."

[5-13 minutes] Group Work

[DO] Circulate among groups, observing their work.

[DO] Ask guiding questions: "How would someone collect this information?" "What method makes sense?" "What else would you want to know?"

[DO] Note common challenges: organizing data, identifying methods, generating questions.

[13-15 minutes] Group Sharing

[SAY] "Let's see your tables. Group 1, please share."

[DO] Display one group's table and discuss its organization.

[ASK] "What data collection method was most likely used?"

[LISTEN] to responses - expect "survey" or "questionnaire".

[SAY] "Excellent! A survey or questionnaire would be the best way to ask many people about their TV viewing."

[ASK] "What other questions did you come up with?"

[DO] Record interesting questions on the board.

Phase 2: Structured Instruction (10 minutes)

[15-17 minutes] Introduce Data Collection Methods

[SAY] "Great work! Now let's learn about the five main methods of collecting data."

[WRITE on board] "Methods of Data Collection"

[SAY] "There are five main ways to collect data. Let's explore each one."

[17-22 minutes] Five Data Collection Methods

[WRITE on board] "1. SURVEYS/QUESTIONNAIRES"

[SAY] "A set of questions to gather information from many people. Can be done in person, by phone, or online. This is what was used for the TV viewing data!"

[EXAMPLE] "Like when you fill out a form asking about your favorite subjects."

[WRITE on board] "2. INTERVIEWS"

[SAY] "A conversation where you ask someone questions and get detailed answers. Good for getting deep information from fewer people."

[EXAMPLE] "Like when a journalist talks to someone for a news story."

[WRITE on board] "3. OBSERVATIONS"

[SAY] "Watching and recording what happens naturally. You don't ask questions - you just watch and record."

[EXAMPLE] "Like counting how many students use the library during lunch break."

[WRITE on board] "4. EXPERIMENTS"

[SAY] "Changing one thing to see what happens to another thing. Used a lot in science."

[EXAMPLE] "Like testing which fertilizer makes plants grow fastest."

[WRITE on board] "5. EXISTING RECORDS (Secondary Data)"

[SAY] "Using data that someone else already collected. Saves time and money!"

[EXAMPLE] "Like using government census data for a geography project."

[22-25 minutes] Choosing the Right Method

[SAY] "How do you choose which method to use? Ask yourself: What do I need to know? How many people? How much time and money do I have? Is the data already available?"

[DO] Give quick examples of matching methods to research questions.

Phase 3: Practice and Application (15 minutes)

[25-28 minutes] Worked Example 3.1.7

[SAY] "Let's practice choosing the right method. A student wants to find out the most popular extracurricular activities among classmates."

[ASK] "What data collection method would be best?"

[LISTEN] to responses.

[SAY] "Correct! A survey or questionnaire. Why? Because we need information from many students quickly, and we want structured answers we can count."

[ASK] "What questions could the student ask?"

[DO] Write student suggestions on the board.

[SAY] "Good examples: 'What extracurricular activities do you participate in?' and 'How often do you participate?'"

[28-33 minutes] Worked Example 3.1.8

[SAY] "Now let's analyze data from a bakery survey."

[WRITE on board] The pastry preference data: Cakes 45%, Cookies 30%, Breads 20%, Doughnuts 5%.

[ASK] "What method did the bakery use?"

[SAY] "Yes, a survey! They asked customers directly."

[ASK] "What's the most popular pastry?"

[SAY] "Cakes at 45%!"

[ASK] "What percentage prefer Cakes or Cookies?"

[DO] Work through the calculation: $45\% + 30\% = 75\%$.

[ASK] "Which is least popular?"

[SAY] "Doughnuts at only 5%."

[33-35 minutes] Independent Practice

[SAY] "Now complete the exit ticket on your own."

[DO] Distribute exit ticket with the four questions.

[DO] Circulate and provide assistance.

Phase 4: Assessment (5 minutes)

[35-38 minutes] Exit Ticket Review

[SAY] "Let's review together."

[ASK] "For question 1, which method for finding litter in the school compound?"

[SAY] "Correct! Observations - you need to watch and record what's actually there."

[ASK] "What ethical consideration for interviews?"

[SAY] "Great answers! Get consent, respect privacy, be honest about your purpose, keep information confidential."

[ASK] "Why keep accurate records during observations?"

[SAY] "Yes! So your data is reliable and others can verify your findings."

[38-40 minutes] Closure

[SAY] "Excellent work today! We learned five methods of data collection: surveys, interviews, observations, experiments, and existing records. Each method is useful for different situations."

[DO] Collect exit tickets.

[SAY] "Tomorrow, we will learn how to organize and represent data. For homework, identify one example of each data collection method you see in your daily life. See you then!"

Teaching Tips

- Use real-world examples students can relate to: school surveys, sports statistics, science experiments.
- Emphasize matching the method to the research question.
- Discuss ethical considerations: consent, privacy, honesty.
- Connect to other subjects: science (experiments), geography (existing records), social studies (surveys).
- Show actual examples of questionnaires, observation checklists if available.
- Encourage students to think about advantages and disadvantages of each method.
- Relate to careers: market research, scientific research, journalism.

Common Student Errors to Watch For

- Confusing surveys with interviews (surveys are standardized, interviews are conversational).
- Thinking observations require asking questions (they don't - just watch and record).
- Not considering practical factors when choosing methods (time, cost, access).
- Forgetting that experiments manipulate variables (not just any data collection).
- Assuming one method is always best (different situations need different methods).
- Not recognizing ethical issues in data collection.