

# Step by step guide\_Sources of Data

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## Pre-Class Preparation

- Prepare group assignments (3-4 students per group).
- Print anchor activity worksheets with the social media research scenario.
- Prepare chart paper and markers for group presentations.
- Have examples of primary and secondary data sources ready (textbooks, newspapers, survey forms).
- Write key definitions on the board or prepare slides.
- Prepare classification examples on cards for sorting activities.
- Have real-world scenarios ready for discussion.

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

[0-2 minutes] Introduction

[SAY] "Good morning, class! Today we begin our study of Statistics. Statistics helps us collect, organize, and understand information to make better decisions."

[SAY] "Think about when you want to know something - like which sport is most popular in your class, or how many hours students spend on homework. How would you find out? That's what we'll learn today - how to collect data!"

[ASK] "Who has heard of the word 'data' before? What do you think it means?"

[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 on a research scenario about social media and teenage mental health."

[3-5 minutes] Explain the Activity

[SAY] "Imagine you are researchers studying the effects of social media on teenage mental health in Kenya. You need to collect information."

[WRITE on board] The five tasks from the anchor activity.

[SAY] "Your group has four tasks: suggest a primary data collection method, suggest a secondary data source, explain the difference between them, and discuss why secondary data is important."

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

[5-13 minutes] Group Work

[DO] Circulate among groups, observing their discussions.

[DO] Ask guiding questions: "How would you collect new information?" "Where could you find information that already exists?" "What makes data primary or secondary?"

[DO] Note common challenges: understanding the difference between primary and secondary data, identifying appropriate methods.

[13-15 minutes] Group Sharing

[SAY] "Let's hear from each group. What primary data collection method did you suggest?"

[DO] Record responses on the board: surveys, interviews, observations.

[ASK] "What secondary data sources did you identify?"

[DO] Record: government reports, research articles, published studies.

[ASK] "How would you explain the difference between primary and secondary data?"

[LISTEN] to explanations and acknowledge correct understanding.

## **Phase 2: Structured Instruction (10 minutes)**

[15-17 minutes] Formalize Data Definitions

[SAY] "Excellent work! Now let's formalize what you discovered."

[WRITE on board] "Data is a collection of facts, figures, numbers, observations, or descriptions that help us study or understand something."

[SAY] "Data is everywhere - test scores, temperatures, population counts, survey responses. All of these are data!"

[17-20 minutes] Three Categories of Data Sources

[SAY] "There are three main categories of data sources:"

[WRITE on board] "1. PRIMARY DATA - Original, first-hand data collected directly for a specific purpose"

[SAY] "Primary data is like being a detective - you collect the information yourself. Examples: conducting your own survey, interviewing people, observing behavior, doing experiments."

[WRITE on board] "2. SECONDARY DATA - Previously collected data used for a different purpose"

[SAY] "Secondary data is like using a library - someone else collected it, but you can use it. Examples: government reports, research articles, published studies, historical records."

[WRITE on board] "3. TERTIARY DATA - Summaries and compilations from primary and secondary sources"

[SAY] "Tertiary sources are like encyclopedias - they summarize information from many sources. Examples: dictionaries, textbooks, encyclopedias."

[20-23 minutes] Primary Data Collection Methods

[SAY] "Let's look at the four main ways to collect primary data:"

[WRITE on board] List the four methods: Surveys/Questionnaires, Interviews, Observations, Experiments.

[DO] Give brief examples of each method using familiar scenarios.

[23-25 minutes] Advantages of Secondary Data

[SAY] "Why use secondary data? It has several advantages:"

[WRITE on board] "Cost-effective, Time-saving, Large datasets, Historical perspective, Reliable sources"

[SAY] "But remember - sometimes you need primary data because secondary data doesn't answer your specific question!"

### **Phase 3: Practice and Application (15 minutes)**

[25-30 minutes] Worked Example 3.1.2

[SAY] "Let's practice classifying data sources. I'll read five scenarios, and we'll decide if each is primary or secondary data."

[READ] Scenario 1: "A student conducts a survey to find out the favorite sports of their classmates."

[ASK] "Is this primary or secondary data?"

[LISTEN] to responses.

[SAY] "Correct! It's primary because the student is collecting first-hand data directly from people."

[DO] Continue with all five scenarios, asking students to classify each and explain their reasoning.

[DO] Write the correct answers on the board with brief explanations.

[30-35 minutes] Independent Practice

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

[DO] Distribute exit ticket with the four exercises.

[DO] Circulate and provide assistance, especially with definitions.

[DO] Remind students to give reasons for their classifications.

#### **Phase 4: Assessment (5 minutes)**

[35-38 minutes] Exit Ticket Review

[SAY] "Let's review the exit ticket together."

[ASK] "For question 1, is counting flamingos primary or secondary data? Why?"

[SAY] "Correct! It's primary because students collected the data themselves through direct observation."

[ASK] "What data sources can the shop owner use in question 2?"

[SAY] "Yes! Observation (primary) and sales records (secondary)."

[38-40 minutes] Closure

[SAY] "Excellent work today! We learned about data sources - primary, secondary, and tertiary. Remember: primary data is collected by you, secondary data is collected by someone else, and tertiary data summarizes both."

[DO] Collect exit tickets.

[SAY] "Tomorrow, we will learn about methods of data collection in more detail. For homework, find one example of primary data and one example of secondary data from your daily life. See you then!"

#### **Teaching Tips**

- Use real-world examples: school surveys, government census, newspaper articles.
- Emphasize that the same information can be primary for one person and secondary for another.
- Connect to students' experiences: social media, school projects, family decisions.

- Use visual aids: charts comparing primary vs secondary data.
- Encourage students to think about reliability and credibility of sources.
- Relate to other subjects: science experiments (primary), history textbooks (tertiary).
- Discuss ethical considerations: consent, privacy, honesty in data collection.

### **Common Student Errors to Watch For**

- Confusing primary and secondary data based on who uses it rather than who collects it.
- Thinking all published data is secondary (experiments published in journals are still primary).
- Not understanding that the same data can be primary for the original collector and secondary for others.
- Forgetting that tertiary sources exist (focusing only on primary and secondary).
- Assuming secondary data is less valuable than primary data.
- Not considering the purpose of data collection when classifying sources.