It's time to learn about time. In this hands-on lesson, students manipulate clock hands and jump across timelines in order to calculate the "distance" between different times and events.

Learning Objectives

Students will be able to calculate elapsed time and recognize word problems involving elapsed time.

Materials and Preparation

- Large manipulative clock with movable hands
- Several small manipulative clocks with movable hands
- Pencils
- Lined paper

Key Terms:

- elapsed time
- timeline

Lesson

Introduction (5 minutes)

- Introduce the concept of elapsed time to your students. Explain that **elapsed time** means time that passes. For example, one day has elapsed since yesterday's class period began.
- Ask students to share some examples of elapsed time. Some guiding questions you can ask are: *How much time has elapsed since you woke up? How much time elapses while you eat lunch?*
Explicit Instruction/Teacher Modeling (20 minutes)

- On the board, draw a number line (11 ticks) with arrows at both ends. Label each tick with a time: 1:00pm, 1:30pm, 2:00pm...ending with 6:00pm. Let students know that what you drew is a timeline—it shows different times from earliest to latest.
- Show students how to "jump" by hours and minutes. For example, you could go from 2:00pm to 4:00pm by jumping two hours forward. To go one hour and 30 minutes backwards from 5:00pm, you would jump one hour backward to 4:00pm, then 30 minutes backward to 3:30pm.

Guided Practice/Interactive Modeling (20 minutes)

- Distribute a pencil and sheet of lined paper to each student.
- Have students draw their own timelines using yours as a model.
- Give them a start and end time for which to calculate an amount of elapsed time.
- Ask them to make the proper number of hour jumps and note the number beside their timeline. For example, if your start and end time are 1:30pm and 3:00pm, they should make two hour jumps.
- Ask them to make the proper number of minute jumps and note the number beside their timeline. With the current example, they should make 30 minute jumps.
- Have them add the hour and minute jumps they made in order to determine the elapsed time. Ask them to record their answers on their sheets.
- Repeat this exercise with two more sets of start and end times.

Independent Working Time (30 minutes)

- Use the board to display 6 elapsed time word problems. (These can be written down and hidden beforehand to save time.) One problem that you could use is: Morty went on a drive last weekend. He left his house at 1:00pm and arrived at his destination at 4:00pm. How much time elapsed during his drive?
- Give students 20-25 minutes to solve the problems and record their answers.
- Walk around and observe students as they work. Provide assistance when needed.
Extend

Differentiation

- **Enrichment:** Have advanced students try solving some problems using addition and subtraction. Explain that one hour is equal to 60 minutes, so instead of using a timeline, you can add or subtract minutes (up to 60) to find elapsed time. For example, to calculate the elapsed time between 1:30pm and 3:30pm, you would subtract 30 from 30 to get 0 minutes, then 1 from 3 to get 2 hours (or 120 minutes).
- **Support:** Allow struggling students to use small manipulative clocks as reference tools.

Review

Assessment *(15 minutes)*

- Over the course of your observation, make notes about common mistakes and what problems students consider difficult.
- Collect the sheets at the end of the exercise. Review them later to further assess student comprehension.

Review and Closing *(10 minutes)*

- Briefly review the concept of elapsed time.
- Go over the answers to the word problems, pausing occasionally to ask about difficulties that students came across.
- Use the remaining time to answer any questions students have about the lesson content.