4th Grade Math: Understanding Time

Lesson Objective:

By the end of this lesson, students will be able to:

- Read and write time to the nearest minute using analog and digital clocks.
- Understand the concept of AM and PM.
- Calculate elapsed time in real-world scenarios.

1. Introduction to Time

Time Measurement:

- **Clocks:** There are two main types of clocks—analog clocks (with hands) and digital clocks (with numbers).
- **Units of Time:**
  - 1 minute = 60 seconds.
  - 1 hour = 60 minutes.
  - 1 day = 24 hours (split into AM and PM).

Analog Clock:

- **Hour Hand:** Short hand, moves slowly and shows the hour.
- **Minute Hand:** Long hand, moves faster and shows minutes.
- **Second Hand (optional):** Moves the fastest and shows seconds.

Digital Clock:

- Digital clocks display time using numbers, such as 10:30 or 4:45.

2. Reading Analog and Digital Clocks

Reading an Analog Clock:

1. **Look at the Hour Hand:** The hour hand points to the current hour. If it's between two numbers, use the smaller number.
2. **Look at the Minute Hand:** Count by 5s around the clock (each number represents 5 minutes). If the minute hand is between numbers, count individual tick marks (1-59).
3. **Example:** If the hour hand is between 2 and 3, and the minute hand is on the 4 (which represents 20 minutes), the time is 2:20.

Reading a Digital Clock:

1. **Look at the Displayed Numbers:**
   - The first two numbers show the hour.

    - The last two numbers after the colon show the minutes.
    - Example: If the digital clock says "3:45," it is 3 hours and 45 minutes.

Practice Reading Clocks:

Analog Clock Practice:

- What time is shown if the hour hand is on 9 and the minute hand is on 12?
    - Answer: 9:00.

Digital Clock Practice:

- What time is shown on a digital clock if it says "6:15"?
    - Answer: 6:15.

3. AM and PM

AM (Ante Meridiem): Time from midnight (12:00 AM) to just before noon (11:59 AM).

- Example: 7:30 AM means it's morning, before noon.

PM (Post Meridiem): Time from noon (12:00 PM) to just before midnight (11:59 PM).

- Example: 5:45 PM means it's evening, after noon.

Real-World Examples:

- You might wake up at **7:00 AM**.
- You might have dinner at **6:00 PM**.

Practice:

- What time is 8:30 PM? Is it in the morning or the evening?
    - Answer: Evening.

4. Elapsed Time

Elapsed Time: The amount of time that passes from the start of an event to the end of it.

Steps to Calculate Elapsed Time:

1. **Find the Start Time:**
    - Example: The start time is 1:15 PM.
2. **Find the End Time:**
    - Example: The end time is 3:45 PM.
3. **Calculate the Difference:**

- Count the hours first: From 1:15 to 3:15 is 2 hours.
- Then count the remaining minutes: From 3:15 to 3:45 is 30 minutes.
- **Elapsed Time:** 2 hours and 30 minutes.

Practice Problems:

1. If your school day starts at 8:30 AM and ends at 3:00 PM, how much time has passed?
   - Answer: 6 hours and 30 minutes.
2. You start reading at 2:10 PM and finish at 3:05 PM. How much time did you spend reading?
   - Answer: 55 minutes.

5. Real-World Application

Problem:

- You leave for a birthday party at 3:30 PM, and the party ends at 6:15 PM. How long did the party last?

Solution:

1. Count the hours: From 3:30 PM to 6:00 PM is 2 hours and 30 minutes.
2. Add the extra minutes: From 6:00 PM to 6:15 PM is 15 minutes.
3. **Elapsed Time:** 2 hours and 45 minutes.

6. Review and Wrap-Up

Key Points:

- **Time:** Can be read on analog or digital clocks.
- **AM/PM:** AM is the time before noon, PM is the time after noon.
- **Elapsed Time:** The difference between a start time and an end time.

Exit Question: If you start a movie at 5:45 PM and it ends at 7:30 PM, how long is the movie?