

## ***2.Mathematics: The Language of STEM***

Merriment at the Movies

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### **CONTENT AND TASK DECISIONS**

**Grade Level(s): 2<sup>nd</sup>-3<sup>rd</sup>**

#### **Description of the Task:**

Students will utilize what they already know about time in order to determine what showing they should attend when given the duration time of a particular film.

#### **Indiana Mathematics Content Standards:**

2.M.5 – Tell and write time the nearest five minutes from analog clocks, using a.m. and p.m. Solve real-world problems involving addition and subtraction of time intervals on the hour or half hour.

#### **Indiana Mathematics Process Standards:**

PS.1: Make sense of problems and persevere in solving them.

PS. 3: Construct viable arguments and critique the reasoning of others.

PS. 7: Look for and make use of structure.

#### **Mathematics Content Goals:**

Students will understand elapsed time so that when given a starting time and a particular duration, they will be able to determine the finishing time.

#### **Language Objectives:**

Students will be able to communicate, through sentences, how they determined what time they needed to be at the theater in order to make the movie by using a sentence starter.

#### **Materials:**

“Late for School” by Steve Martin

Magnifying Glasses

Theater Time Recording Worksheets

Empty Number Lines

Individual Student Clocks

Scrap Paper

Document Camera

### **THE LESSON**

#### **Before:**

- **Student Actions:**

- Students will be actively engaged during the read aloud.
- Students will participate in turn and talks in order to activate background knowledge.
- Students will respond to teacher prompts and asking of questions when they do not understand.
- **Teacher Actions:**
  - Activating Prior Knowledge:
    - To begin the lesson, call students down to a designated reading area and read, “Late for School,” by Steve Martin. Before reading, give a brief explanation of the book by explaining it is a story about a little boy who is rushing around because he is running late for school!
    - Throughout the story, pause to have students turn and talk in order to summarize or predict what has been read so far.
    - When you have finished reading the story, ask some (or all) of these questions in order to get students thinking about time:
      - How do we know that the little boy was running late for school?
      - What might have happened if the little boy lost track of time? What do I mean when I say, “losing track of time?”
      - Can you tell me about a time when you, or someone you know, was late to go somewhere because they were focused on something else? What happened when they were late?
  - Be sure the problem is understood:
    - Say: I cannot tell you how many times I was planning to be somewhere at a certain time and was late or completely missed it! Just last week I wanted to go see a movie at the theater, but I was late because I was mowing my lawn! I thought I had enough time to mow my lawn before the movie started, but I don’t know if I planned it out well enough! I might need your help in figuring out what time I need to be at the movie theater for the next time I want to see a movie!
    - Say: Today, you are going to work with some of your peers in order to try to figure out what time Mrs. Christenberry needs to be at the theater in order to make sure I am on time for my movie! You are going to have to be little detectives! Are you ready to help me out?
  - Establish clear expectations:
    - Say: When you get back to your seat, you are going to see some materials at the center of your tables! I want you to read the directions on the front of the envelope with your group! If you need help, please let me know!
    - Say: Inside the envelope, you will find a piece of paper that will tell you all of the different movies showing at the theater and how long each of those movies is! We are all going to pretend that Mrs. Christenberry is at home at 12:00 p.m.! As a time detective, you will have to determine what time I will need to be at the theater in order to make sure I get there on time!
    - Say: You will also find several math tools in your envelopes. Feel free to use any of those tools, but make sure to be kind and allow for all of your friends to use those tools, too! Remember: you are working together, not for one another. Help each other stay accountable and work so that everyone understands!
    - Say: Does anyone have any questions?

**During:**

- **Student Actions:**
  - Students will be using tools in their investigation envelope to help record new

- information on their recording sheet.
- Students will be conversing with their peers in order to assist each other in understanding.
- **Teacher Actions:**
  - Let Go:
    - After you have answered any clarifying questions the students have about performing the task, dismiss students to go back to their seats in order to begin the investigation.
  - Listen Actively:
    - Walk around and monitor student engagement in the activity.
    - Listen as students reason with each other in order to try to solve the time mystery.
  - Provide Appropriate Support:
    - Be careful not to answer student's questions directly. Remember that this lesson is intended for students to discover how to determine elapsed time. If need be, answer student's questions by asking them a question back!
    - If you need to ask a question to probe students, ask something like: what do you already know about time? What do you already know about the movies? What tools are you using to help you figure out your answer? How have you used your peers and friends to help answer the question that you have right now?
  - Provide Worthwhile Extensions:
    - If students are done with the initial activity, have students determine what time they should be at the theater if they knew the time of the first showing, but they had to wait until the movie had showed two or three times before they were available to attend.

**After:**

- **Student Actions:**
  - Students will be expected to explain how they got their answer in written format during a specified time.
  - Students will share their writings with the class when called on by the teacher. (This is important because you will want to be aware of which students you are going to call on and in what order.)
    - To support EL learners, you can use a sentence stem such as this: In order to figure out what time Mrs. Christenberry needs to be at the movies, I \_\_\_\_\_.
  - Students will challenge the thought processes of their peers by asking questions after each has shared what they have found.
- **Teacher Actions:**
  - Promote a Mathematical Community of Learners:
    - After students have had the opportunity to write their sentences explaining how they determined their answer, they will have a chance to share it with their table partners. During this time, I will be walking around and determining which students (probably three) that I will want to call on.
    - Have the students that have been predetermined display the tools and recording sheet they used under the document camera. They should read the sentence aloud to the class and allow for the students to respond with questions. (I will probably call on a student who has given the wrong answer and work towards a student who has given the right one. I will not, however, tell a student if they are right or wrong.)
  - Listen Actively Without Evaluation:

- As stated before, ask students who are not presenting their findings to ask questions in order to understand more. I will ask questions that may help clarify what the student is communicating, but will not ask questions in order to get students to the right answer.
- Make Connections:
  - What do we notice about the different tools and methods our friends used to find their answer?
  - Sometimes in math we learn algorithms, or equations. Can you think of any algorithms that we've already learned that may help you figure out this mystery? What are they?
  - How might your life be affected if you were able to figure out a mystery like this?
- Summarize Main Ideas:
  - Say: Today, you were all excellent detectives and really helped me out! The next time I want to go see a movie, I will be better prepared to make sure I make it there on time! Tomorrow, we are going to learn some really neat strategies that will help us find a way to figure out the elapsed time... that is the time that passes between two points... the first showing of the movie and the showings that follow!

## ASSESSMENT

### Observe:

You must know that most of your observation will come during the “discovery” stage! Watch as students interact with their peers in order to determine the right answer. Look for ways students are using the tools that are presented to them to help find their answer! Their sentence frame is a formal way to assist you in knowing what they've understood!

### Ask:

How do your answers compare to those at your table?  
Did you use the same tools to get your answer as your friend?