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Mississippi Mathematics Manipulatives Manual Featured Activity



“Pigs on a Blanket” Word Problem Puzzles

3.MD.1

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As we continue our efforts to develop high-quality instructional materials (HQIM) and resources, the Mississippi Department of Education (MDE), through the Academic Education Office, would like to showcase instructional practices and activities that foster conceptual understanding through the use of manipulatives in the mathematics classroom.

The **Mississippi Mathematics Manipulatives Manual** features activities meant to serve as short, hands-on procedures that may be implemented before, during, or after a lesson to support the teaching and learning process of the Mississippi College- and Career-Readiness Standards (MCCRS) for Mathematics. Alignment with the MCCRS Scaffolding Document has been included for additional support. Teachers may contact staff at the MDE if they would like to borrow manipulatives for classroom use.

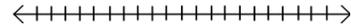
Teachers may modify these activities to meet the needs of the students they serve and their instructional delivery model (virtual, in-person, or hybrid).

Special Thanks:
MDE Literacy Team

“Pigs on a Blanket” Word Problem Puzzles

MANIPULATIVE(S):

- Judy Clock
- Puzzle Pieces (*Attached*)
- A Number Line (Diagram)



GRADE LEVEL OR COURSE

TITLE:

CCR Mathematics Grade 3

DOMAIN AND CLUSTER HEADING:

Measurement and Data (MD):

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects

STANDARD(S):

3.MD.1: Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

PREREQUISITE SKILLS:

- Know how to tell and write time to the nearest hour, half-hour, and 5 minutes using digital and analog clocks.
- Know how to skip count by 5s.
- Know how to add and subtract within 100.
- Know an analog clock has an hour and minute hand. Sometimes an analog clock has a second hand.
- Know A.M. represents time from midnight to noon. P.M. represents time from noon to midnight.
- Know sixty minutes is equivalent to 1 hour.

ACTIVITY:

Note: Activity Sheet Attached

1. Prior to the activity, during whole group instruction, review the following skills:
 - a. To tell and write time to the nearest minute.
 - b. To convert fractional parts of an hour. Example: 15 minutes is equivalent to $\frac{1}{4}$ of an hour; 30 minutes is equivalent to $\frac{1}{2}$ of an hour.
 - c. To model time on a Judy Clock.
 - d. To label and use a number line to find the start time and/or the end time. Example 1: We start school at 8:00 a.m. The school day lasts for 7 hours. What time will school dismiss? Example 2: We will depart for the game at 4:30 p.m. We stopped

at the store for 10 minutes. We still have a 20-minute drive ahead. What time will we arrive for the game? Allow students to use Judy Clocks if they are not comfortable.

- e. To calculate elapsed time: Review how to solve elapsed time word problems utilizing a number line. Example 1: Mom left for work at 6:35 a.m. She arrived at her new job at 7:55 a.m. How much time has elapsed? Example 2: The Art test started at 9:10 a.m. The last person finished at 1:25 p.m. How much time elapsed? Allow students to use Judy Clocks, if needed.
2. Provide each pair of students with a Judy Clock, word problem puzzle pieces, number line recording sheets, and copies of Pig on a Blanket Timeline handout after all students have received whole group instruction.
3. Read aloud Pigs on a Blanket by Amy Axelrod. Have students listen and complete the guided timeline as they follow along during the story.
4. Review the story timeline with students. Allow time for students to ask questions as needed.
5. Have students work in pairs to complete word problem puzzles to determine the starting time and/or ending time. Have students to use the number line recording sheet to model their work. Allow students to use Judy Clocks to assist with telling time, if needed.

QUESTIONS TO CONSIDER:

- What is elapsed time?
- How can we use a Judy Clock to help us figure out elapsed time?
- How can we model elapsed time on a number line (diagram)?
- In what direction do you move when "adding" numbers on a number line?
- In what direction do you move when "subtracting" numbers on a number line?
- How much time does it take the pigs to arrive at the Beach? Explain your reasoning.
- How long does Mrs. Pig decide that the pigs must wait before they can ride go swimming? Explain your reasoning.

RESOURCES:

- [Mississippi Mathematics Scaffolding Document](#) (Grade 3, Page 20)
- [2016 MCCRS for Mathematics](#)
- [Pigs on a Blanket](#) by Amy Axelrod

Optional: The University of Mississippi's Center for Mathematics and Science Education has an extensive inventory of math (and science and technology) tools and manipulatives that teachers may borrow for classroom use at no charge. Click the link below to access the inventory list and complete a check-out request.

- [CMSE Manipulatives](#)

BEYOND THE ACTIVITY:

- **Accommodations:** Write the times to the timelines on the recording page for struggling students. The teacher could also provide struggling students with a printed timeline of event details as a resource tool.
- **Extension:** Students plan a day at the beach and create a schedule of events. Must include departure and arrival time to and from the beach as well as the time or duration of events* at the beach. *Differentiate by requiring a different number of events for different ability groups.
- **Misconception(s):**
 1. Count in the wrong direction, from the wrong start time, or from the wrong hand.
 2. Add, subtract, or count minutes incorrectly.
 3. Increase/decrease the hour when not appropriate or forget to increase/decrease the hour when appropriate.
 4. Count only by 5's when they should also count by 1's.

Activity Sheet

“Pigs on a Blanket” Word Problem Puzzles

The Pigs decided to take a trip to the beach. They start getting ready at 11:30 am. Ten minutes later the piglets are ready. Five minutes later, Mrs. Pig comes downstairs in her new bathing suit. Forty-five minutes later, Mr. Pig comes downstairs. "Let's hurry to the car!" What time do they make it to the car?

Card 1



At 12:45 the pigs are in the car set to leave for the Beach when Mr. Pig discovered he did not have the keys. After searching and searching for the lost keys, Mr. Pig realizes the keys are in his pocket. Finally, they leave for the Beach at 1:45. How long did it take Mr. Pig to locate the car keys?

Card 2

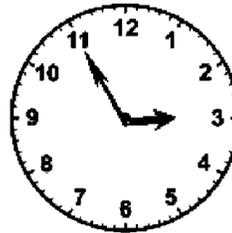
60
minutes

one hour

Finally, at 1:45, the pigs leave for the Beach. They were making good time for three quarters of an hour when they reach a railroad crossing. Twenty-five minutes later the caboose passed, and the pigs were once again on their way. What time is it now?

Card 3

2:55



At 2:55 the piglets need to go to the bathroom. "The Beach is 10 minutes away," said Mr. Pig. "We can't wait," said the piglets. Mr. Pig makes a U-turn, and they arrive at the rest area in 2 minutes. While the piglets visit the bathroom, Mr. Pig visits with the police officer. Thirteen minutes later, the pigs are on their way to the Beach. What time is it?

Card 4

3:10



After the pigs left the rest area, they made it to the Beach at 3:30. How long did it take the pigs to travel from the rest area to the Beach?

Card 5

one-third
of an
hour

20
Minutes

After arriving at the beach at 3:30, Mr. Pig walks off in search of a snack bar. An hour later he returns with triple-decker cheese sandwiches, chips, lemonade, and brownies. At what time do they get to have lunch?

Card 6



Recording Sheet

Name _____ Date _____

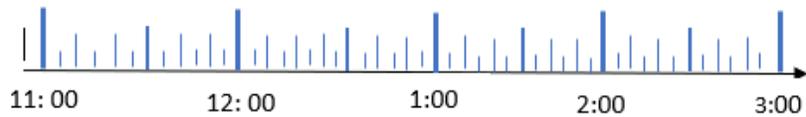
Directions: Use the timeline below that corresponds with the puzzle piece to help solve the Time Word Problems.

Card 1:



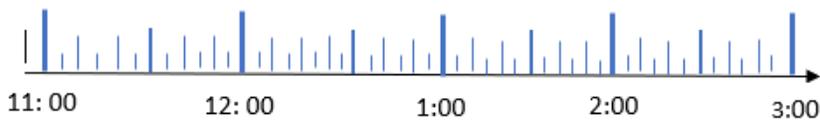
Time: _____

Card 2:



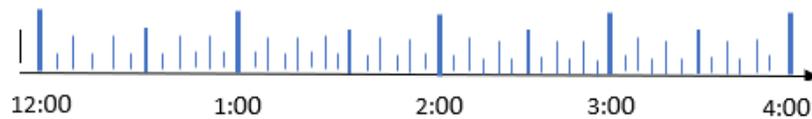
Time: _____

Card 3:



Time: _____

Card 4:



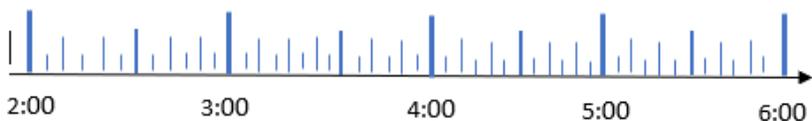
Time: _____

Card 5:



Time: _____

Card 6:



Time: _____

Pigs on a Blanket Timeline

1. Time to Get Ready at _____

Piglets are changed in _____ minutes. Mrs. Pig is ready _____ minutes after the piglets. They wait on Mr. Pig for _____ minutes.



2. Set to Leave at _____

Mr. Pig cannot find his keys. It took _____ for Mr. pig to find his keys.



3. On our way for _____ of an hour.

The pigs waited _____ minutes for the caboose to pass.



4. Bathroom Break _____

Mr. Pig took _____ minutes to return to the rest area. While the piglets were in the restroom, Mr. Pig was with the police officer. After another _____ minutes they were back on the road.



5. At the Beach at _____



6. Hungry for a snack _____

The Piglets wanted something to eat. It took Mr. Pig _____ minutes to return with the food. The pigs ate their food in _____ minutes.



7. The pigs rest before they swim.

The pigs waited _____ minutes before eating a triple decker sandwich. Then waited _____ minutes before eating chips. And waited another _____ minutes before eating brownies and drinking lemonade.



8. Beach closes at _____.

Pigs on a Blanket Timeline - Key

1. Time to Get

Ready at **11:30**.

Piglets are changed in **10** minutes. Mrs. Pig is ready **5** minutes after the piglets. They wait on Mr. Pig for **45** minutes.

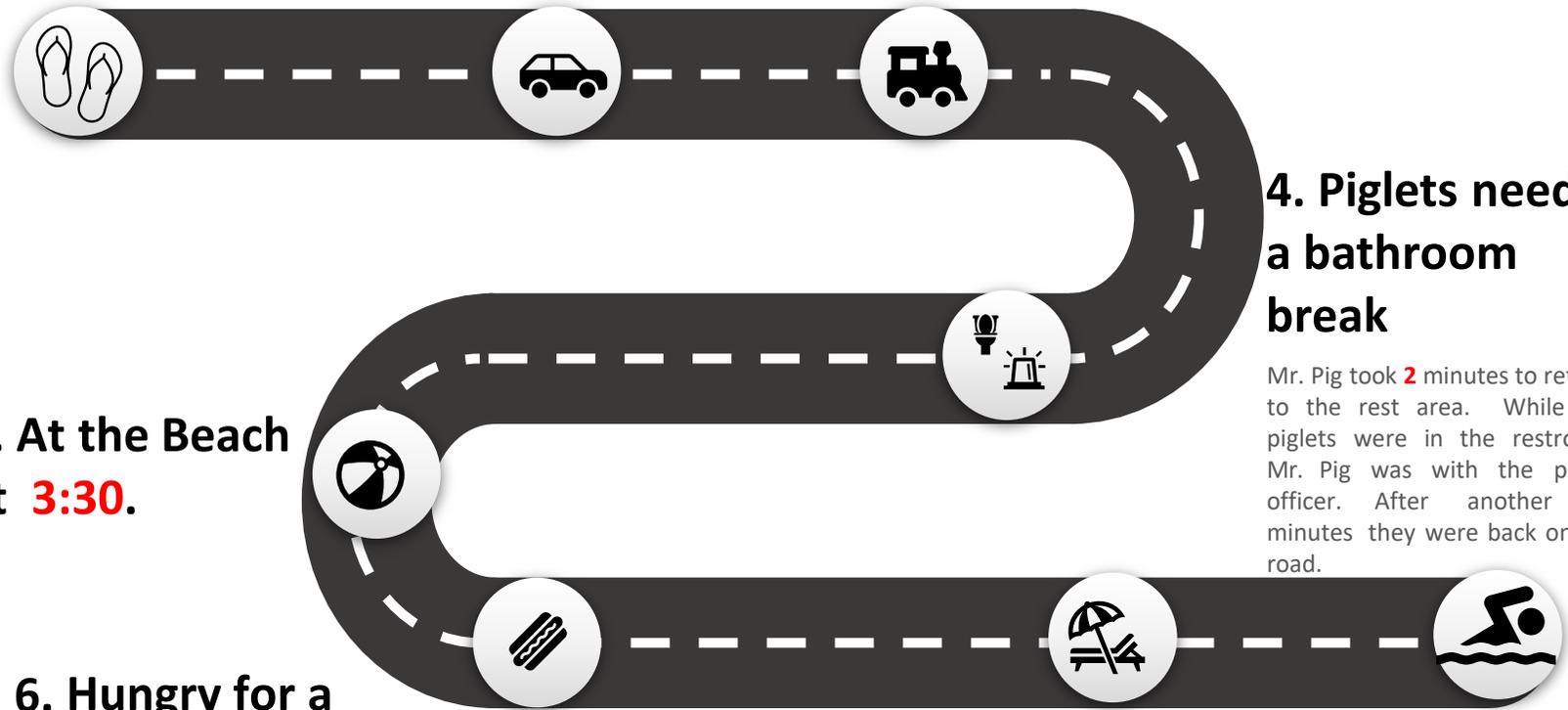
2. Set to leave at

12:45.

Mr. Pig cannot find his keys. It took **1** hour for Mr. Pig to find his keys.

3. On our way for $\frac{3}{4}$ of an hour.

The pigs waited **25** minutes for the caboose to pass.



4. Piglets need a bathroom break

Mr. Pig took **2** minutes to return to the rest area. While the piglets were in the restroom, Mr. Pig was with the police officer. After another **13** minutes they were back on the road.

5. At the Beach at **3:30**.

6. Hungry for a snack.

The Piglets wanted something to eat. It took Mr. Pig **60** minutes to return with the food. The pigs ate their food in **10** minutes.

7. The pigs rest before they swim.

The pigs waited **20** minutes before eating a triple decker sandwich. Then waited **10** minutes before eating chips. And waited another **20** minutes before eating brownies and drinking lemonade.

8. Beach closes at **5:30**