

**Pennsylvania Governor's Institute  
for Mathematics Educators  
2004**

**Names of Group Members:**

**Jamie Calabro, Teresa Feldman, Larry Porterfield**

**Topic/Theme: Digital and Analog Time**

**Level: 1<sup>st</sup> Grade**

**Time Element: 3 class periods**

**NCTM Standards Addressed:**

Apply appropriate techniques, tools, and formulas to determine measurements.

**PA Math Standards Addressed:**

2.3.3. D Tell time (analog and digital) to the minute

**Math Assessment Anchors Addressed:**

M3.B.1 Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and processes of measurement.

M3.1.1 Determine or calculate time and elapsed time.

M3.1.1.1 Tell time (analog) to the minute

**Reading Assessment Anchors Addressed:**

R3.A.2 Demonstrate the ability to understand and interpret nonfiction texts appropriate to grade level.

R3.A.2.1 Identify the meaning of vocabulary from various subject areas.

R3.A.2.1.2 Identify the meaning of an unfamiliar word if word or picture clues are available.

**Objectives:**

Students will be able to identify the difference between analog and digital clocks.

Students will create their own digital and analog clocks.

Students will compare time with analog and digital clocks correctly matching 1 hour increments.

**Instructional Strategies and Plan (include strategies used to help different types of learners, i.e. auditory, visual, etc.):**

Day 1

1. Teacher will bring in several examples of digital and analog clocks. Teacher will discuss with the students what they see as differences and similarities. The teacher will make a chart and of same and different on the board and write down the student's answers under the appropriate chart.
2. After the discussion the teacher will erase the board and draw a line dividing the board area in two. Label one side analog and one side digital. Take the Time Machine Bag and have the students come up one at a time and pick a picture out of the bag. The student then has to place the picture correctly on either the analog or digital side. If the student is having difficulty he/she may ask one friend to help them make a decision.

Day 2

1. Teacher will explain the clock project.
2. The teacher will model how to assembly the essential parts of each clock.
3. The students are allowed to be creative with the area around each clock (example: The student may want to draw a bear or sun around their analog clock and a car around their digital clock. Provide several outline drawings the students can pick from if they do not want to draw around the clocks themselves. The students can then paste their clock in the outline, color, and design the rest of the object as they want.

Day 3.

1. The teacher will create a large circle on the floor( big enough for the class to stand around). Make lines to represent the hours on the clock. ( This activity can also be done on the blacktop of the playground with chalk.)
2. Divide the class into a digital and analog team. (The analog team must have 12 players. The teams do not have to be even)
3. The teacher will then randomly hand out the appropriate cards to each team.

4. The student who has the analog time 12 o'clock will go first and stand at the appropriate spot on the clock on the floor.
5. Have the analog students go one at a time to the appropriate mark on the floor clock, until the clock is filled. (They may go in order the first time they play, but if played more than once they can go in any order to add challenge to the game.)
6. Have the student who is standing at 12 o'clock ask the student to come stand by him who has the digital time of 12:00. If the correct match has been made have the student at 1 o'clock ask for their digital match until all the digital times have been matched.
7. This game can be played several times with the students going on different teams and having different times to match.

### **Materials/Resources:**

1. Different types of (real) analog and digital clocks (1<sup>st</sup> day activity)
2. Labels for charts (same/different, analog /digital) (1<sup>st</sup> day activity)
3. Time Machine Bag ( pictures of analog and digital clocks from magazines or printed from the internet) (1<sup>st</sup> day activity)
4. template of analog and digital clocks ( 2<sup>nd</sup> day activity)
5. outlines of objects to use around clocks (2<sup>nd</sup> day activity)
6. markers, crayons, scissors, pencils, brackets (2<sup>nd</sup> day activity)
7. tape/chalk (3<sup>rd</sup> day activity)
8. 12 cards of analog time (1-12 o'clock)
9. 12 cards of digital time (1:00 – 12:00)

### **Interdisciplinary Connections:**

- **Reading**  
Vocabulary Development  
M-4 List – Group – Label  
M-8 Verbal and Visual Word Association
- **Technology**  
Digital and Analog interactive practice  
[www.time-for-time.com/swf/myclox.swf](http://www.time-for-time.com/swf/myclox.swf)  
<http://www.pitara.com/activities/math/time/time.asp>

Worksheets for extra practice of analog and digital clocks together

[www.time-for-time.com/worksheets/atodhour.pdf](http://www.time-for-time.com/worksheets/atodhour.pdf)

[www.time-for-time.com/worksheets/dtoahours.pdf](http://www.time-for-time.com/worksheets/dtoahours.pdf)

<http://www.blackdog.net/games/clock/worksheets/digital.html>

Quiz online (self checking)

[http://www.fi.edu/time/Journey/JustInTime/hour\\_quiz.html](http://www.fi.edu/time/Journey/JustInTime/hour_quiz.html)

Online memory matching game

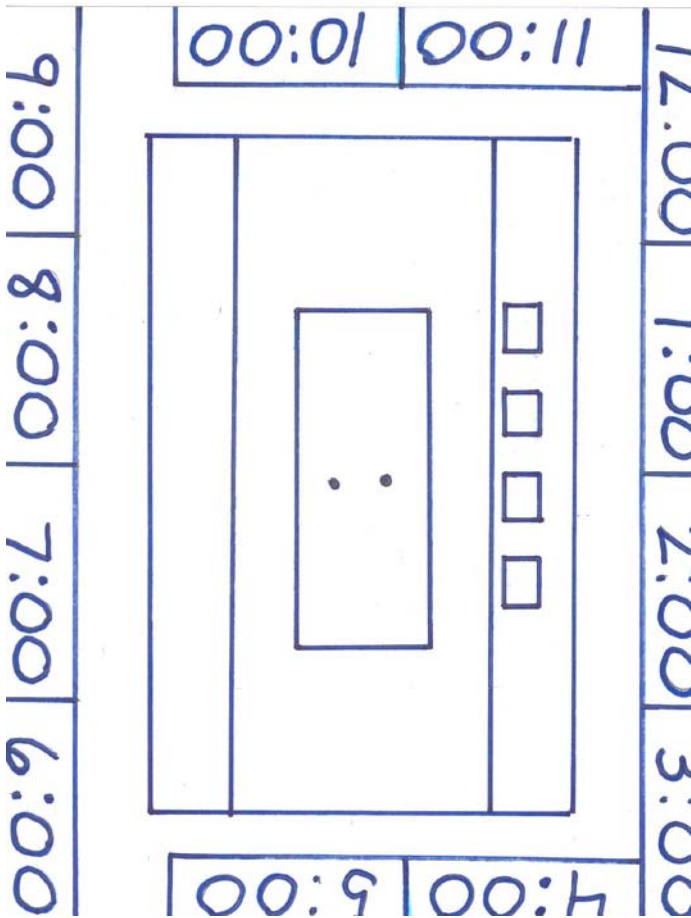
[http://www.funbrain.com/cgi-](http://www.funbrain.com/cgi-bin/fm.cgi?A1=s&ASEP=TRUE&A2=20&A35=2&INSTRUCTS=1)

[bin/fm.cgi?A1=s&ASEP=TRUE&A2=20&A35=2&INSTRUCTS=1](http://www.funbrain.com/cgi-bin/fm.cgi?A1=s&ASEP=TRUE&A2=20&A35=2&INSTRUCTS=1)

- Other

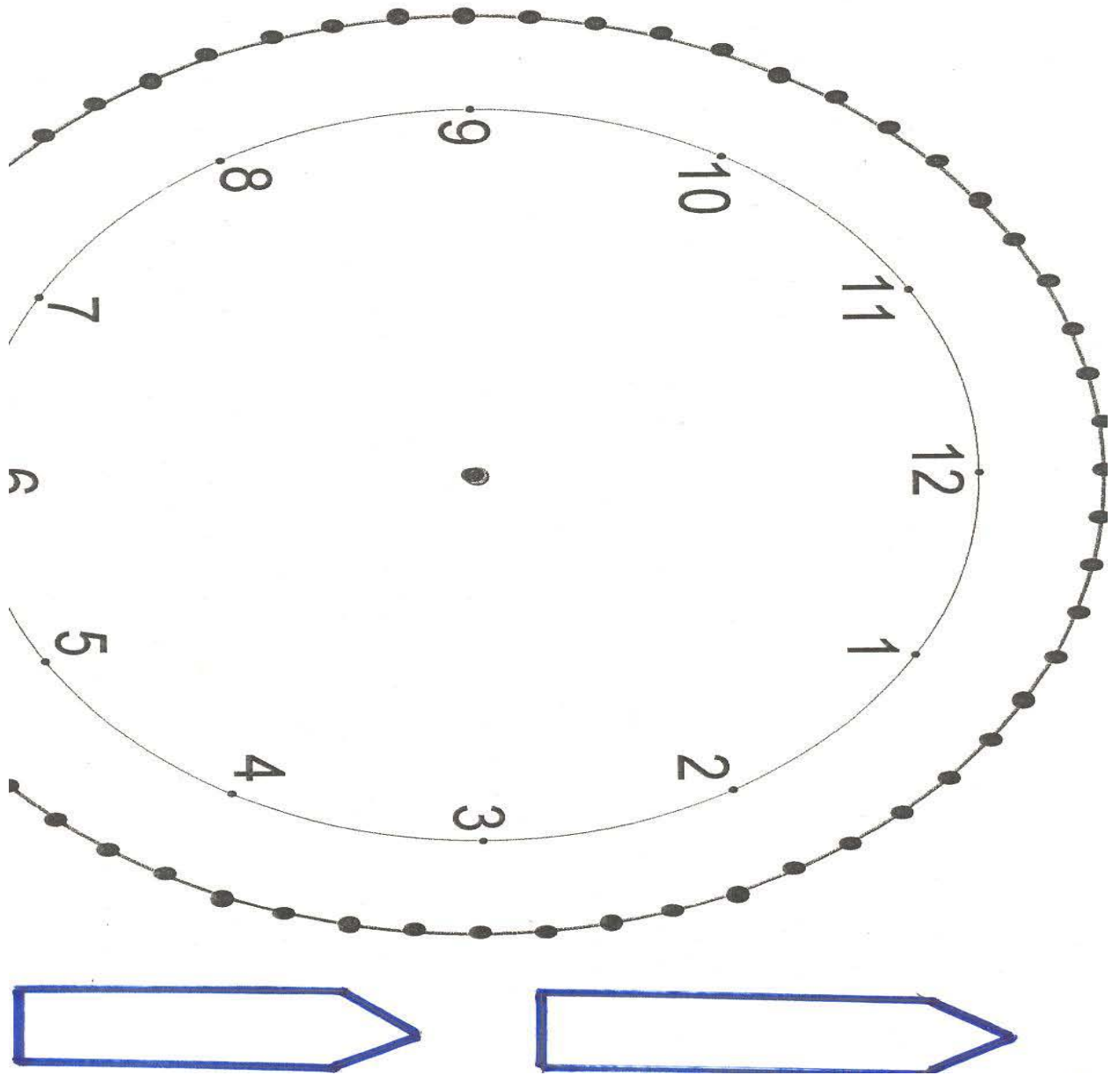
Scanned copies of clock outlines and game card example

Digital

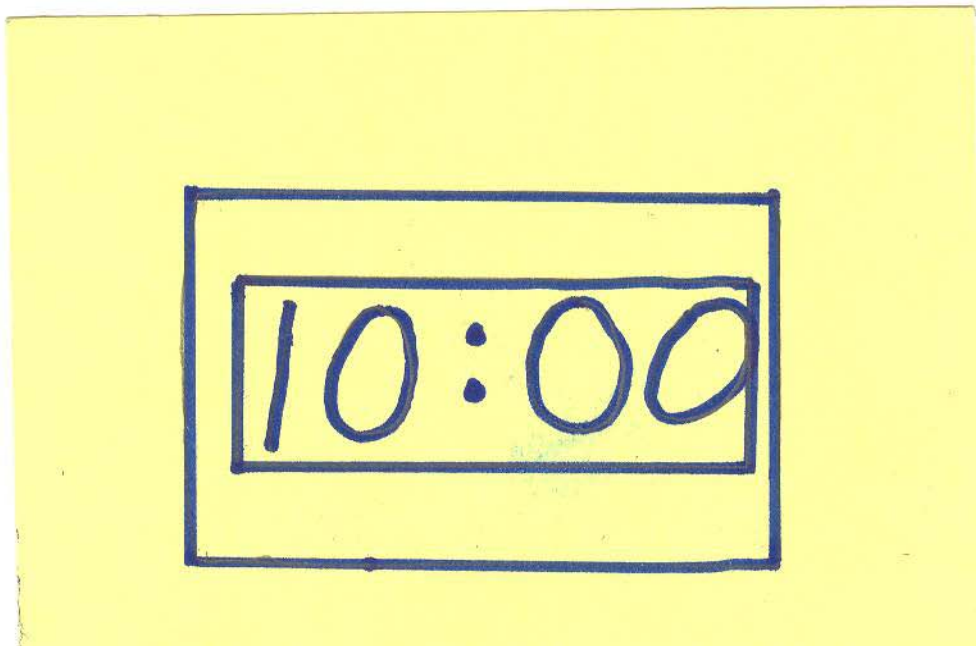
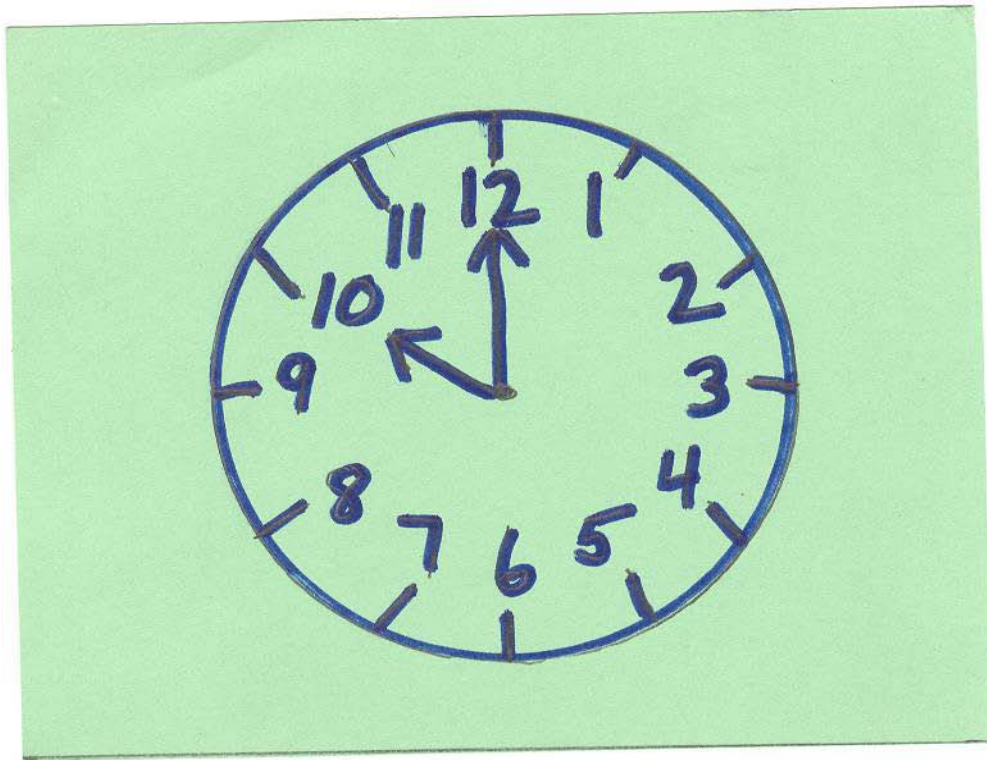


Analog

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Card example for matching clock game



**Assessment Strategies:**

- **Formative Evaluation (checking student understanding during the lesson):**

Activity 1: Teacher observation of discussion of same and different

Teacher observation of students placing a picture correctly of a clock under analog or digital label

Activity 2: Completion of analog and digital clock

Activity 3: Teacher and student observation of correct matching of analog and digital time on floor clock.

- **Summative Evaluation (how will it be determined that the objectives were achieved?):**

Test (the following 3 pages)

**ASSESSMENT FOR IDENTIFICATION OF ANALOG AND DIGITAL  
CLOCKS**

**ASSESSMENT FOR COMPARISON OF TIME BY THE HOUR ON  
ANALOG AND DIGITAL CLOCKS**

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Please draw an analog clock.

2. Please draw a digital clock

3. Please write, on the lines below, what the difference is in reading an analog and digital clock.

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(Part two:)

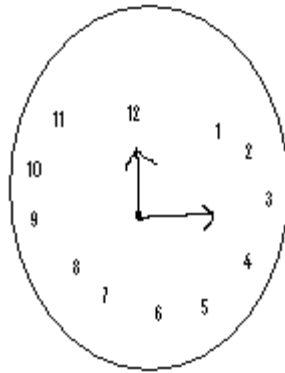
Draw several examples of digital time and analog time and have the students match them.)

### MODIFIED TEST

NAME \_\_\_\_\_

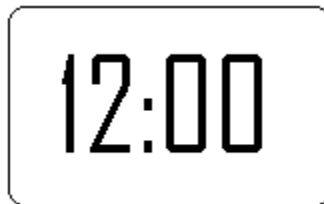
DATE \_\_\_\_\_

1. Please circle the correct term that tells if the clock is an analog or a digital clock.



analog clock

digital clock



analog clock

digital clock

2. Please circle true or false

When you tell time with an analog clock, you tell the time by looking where the hands are pointing.

True

False

When you tell time with a digital clock you read just the numbers.

True

False

## **Correctives/Remediation:**

### Activity 1:

- Student may ask a friend if they are having trouble to help them place the picture under the correct label.
- Student may be paired with a buddy to go up to the board with.
- Student can have their own note card divided with the labels and an example of a digital and analog clock that they may keep at their desk and/or take up with them to the board.
- Self correcting flash cards of analog and digital clocks

### Activity 2:

- Student can have picture directions of how to assemble each clock.
- Student can have most of one or both clocks already assembled and they can decorate each clock.
- Teacher can model right in front of the student on the board or on their desk.

### Activity 3:

- Buddy system
- Note card showing examples of matches

## **Extensions/Enrichment:**

Self Correcting File Folder activity matching elapsed time with digital and analog clocks

Websites mentioned under the technology section that are interactive

## **Special Accommodations (special needs students)**

### **• Description of the Special Needs Student Selected:**

Margaret is functioning three years below grade level. She is receiving learning support services for language arts and math and has difficulty following directions in all instructional areas. Margaret has difficulties in language comprehension, vocabulary, direction following, event sequencing, and working memory. She can answer literal comprehension questions in all content areas and usually answers 1 out of 5 inferential questions correctly. She tends to jump into reading tasks without previewing material but has success when the instructions are broken down and accompanied by modeling. She has difficulty with basic math facts for multiplication and division as well as problems involving multiple steps.

- **Accommodations to Use with this Student:**

Case 1: Margaret

Discussion/Questioning :

- Place student near the teacher and/or directly in front of the teacher.
- Follow discussion/lecture with hands-on activity.
- Provide the student with visuals as part of the discussion.

Independent Worksheets:

- Use a “buddy or partner system” with every child and change buddies every two to three weeks.
- Make frequent checks for worksheet completion.

Assessment:

- Offer untimed testing.
- Allow the student to write or circle the answers on the test.
- Provide limited choices for multiple or matching tests.

Projects:

- Give the student a checklist for each step of the project.