

Morning Math Board

Overview

The purpose of this project is to involve students in highly engaging math activities that can be used to incorporate all math strands into the curriculum every day. It is designed to give students daily hands-on practice so that once a concept is introduced it can be reinforced throughout the school year.

At the beginning of the year it is necessary to spend 2-3 days introducing students to each math concept that will be taught in greater depth later in the school year. Each day after that 2 student helpers are selected to perform all activities on the Morning Math Board. The helpers perform the tasks that are listed on two sets of job cards.

During a morning meeting time after all of the tasks have been performed, all students gather on the area around the Morning Math Board. The teacher leads the class in a discussion of each section of the math board. Students are given the opportunity to agree with or challenge the answers on the board.

Advanced Preparation

You will need to designate a bulletin board or section of the chalkboard to display the activities on the math board. It is best to have the Morning Math Board near a carpeted area so that the entire class can be seated around the board for discussion. If you have magnetic chalkboards, you can cover a section with solid colored contact paper and put magnetic tape on the back of each manipulative. Activities that require students to write or record answers can be done on post-it notes and then disposed of at the end of the day, or they can be written with overhead markers on laminated paper and then erased with water at the end of the day. If you do not have magnetic chalkboards, the activities can all be written by the teacher on large chart tagboard and then laminated. Velcro can be placed on the laminated tagboard and on the back of each manipulative. See photos on the next page:

Calendar

Today is: _____
(Day) (Month) (Date) (Year)

Yesterday was _____

Today is _____

Tomorrow will be _____

Today is the _____ day of school.


 odd
even

_____ hundreds _____ tens _____ ones
 _____ + _____ + _____

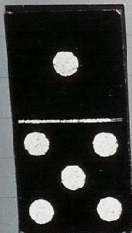



Money

 \$


Time

 It is _____ minutes after _____.

Fractions

 (Domino)  (Fraction)   (Not shaded)

Draw this fraction another way:



You will need to gather or make the manipulatives that are described for each activity. It will also be necessary to have a storage system such as small plastic baskets for the markers and manipulatives. All items need to be within easy reach of students.



Description of Math Board Activities

Calendar

Students place the next date on the calendar and then write the correct date on the chart. They also write the previous, current, and subsequent day of the week. Below is a diagram of what this looks like on the Math Board:

Date	Tuesday,	May	13,	2008
	(Day of the Week)	(Month)	(Date),	(Year)
Yesterday was	Monday			
Today is	Tuesday			
Tomorrow will be	Wednesday			

Materials:

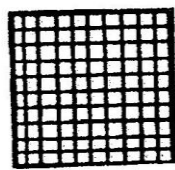
- Display calendar
- Monthly calendar pieces

Days of School

The student helper uses the number line that stretches across the room (this will be described at the end of this section) to determine the number of days we have been in school. The student then writes the day of school as an ordinal number on the chart: "Today is the 126th day of school." The student then uses base ten blocks to represent this number and writes the number in expanded notation. The student also decides whether this number is even or odd and circles the correct answer. See example:

Today is the 126th day of school.
(st, nd, rd, th)

Use base ten blocks to represent this number:



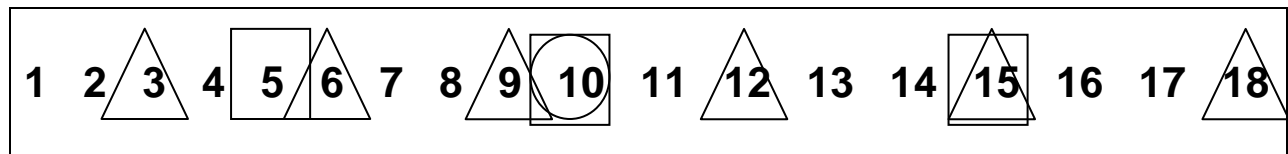
1 hundreds 2 tens 6 ones

$$\underline{100} + \underline{20} + \underline{6}$$

126

This number ends with 6 in the ones place. Is it ^(circle one) even or odd?

When the class convenes around the board, ask them to state the day of school. Then write this number on a number line that stretches across the room. If it is an even day write the number in blue marker, and if it is an odd day write the number in red marker. Ask students to state any number patterns such as skip counting by 3's, 5's, 10's. If the day of school is a multiple of 3, draw a purple triangle around the number and have the class practice skip counting by 3's starting at different points on the number line. This is great readiness for multiplication. If the number is a multiple of 5's, draw an orange square around it and have students skip count. If it is a multiple of 10's, draw a green circle around it and skip count by 10's. See sample number line below:



As the year progresses and the number line grows longer, have students draw conclusions about various patterns and make predictions such as “when will be the next day that we will skip count by 3's, 5's, and 10's?” [Answer: days 30, 60, 90, 120, 150, 180]

You can also use this number line to develop the concepts of even and odd; before, after, between; and more and less by asking various questions such as: “Can you find an even number that falls between 60 and 70 and whose digits added together equal 10?” [Answer: 64]

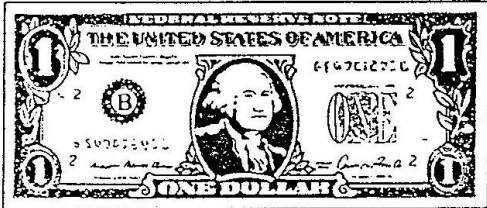
Materials:

- Base ten blocks (1 flat, 10 rods, 10 unit cubes); velcro or magnetic tape on back
- Adding machine tape for number line
- Various colored markers

Money

Next the student represents the day of school using money. S/he uses chooses. The student then writes the amount in two ways.

Use the money to show this day of school.



I can write this amount in two ways: \$ 1.26 or 126¢

When the class convenes around the math board, have volunteers practice counting the money. Also ask students if they can think of another way to represent this amount. You can use the displayed money as a springboard for some problem solving questions such as: "If I wanted to buy a candy bar that cost \$1.26, how much more money would I need if I now have 5 quarters?"

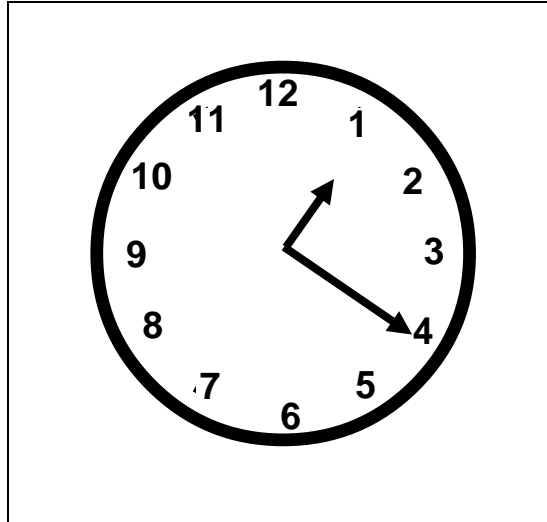
Materials:

- Large demonstration money (velcro or magnetic tape on back)

Time

The student helper chooses a time card from a ziploc bag.

Example:



The student then makes that time on the demonstration clocks (analog and digital) and writes the time in two ways:

An analog clock face showing 1:20, a digital clock display showing 1:20, and the time written in two ways: "It is 20 minutes after 1." and "1:20".

It is 20 minutes after 1.

1 : 20

When the class convenes around the board, have them practice reading the clocks. You can also introduce other ways to read the time: “half-past 2”, “quarter after 5”, etc. The times can be used as a springboard for problem solving: “I start my homework at 4:25. If it takes me 30 minutes to complete it, at what time will I finish?”

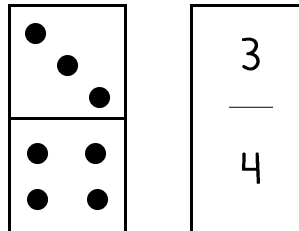
Materials:

- Demonstration clock face and digital clock or drawing of one
- Clock stamp
- Teacher-made time cards, each displaying a different time

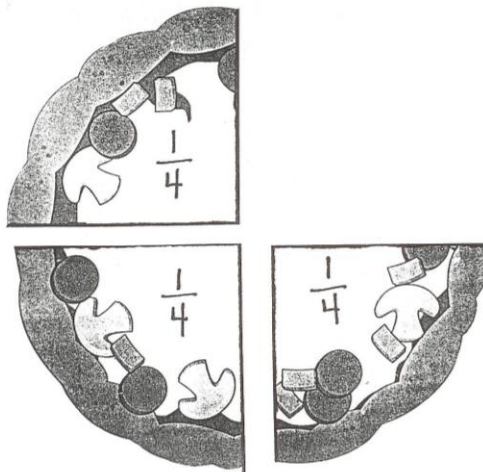
Fractions

The student helper chooses a demonstration size domino (these can be made from black construction paper and white sticker dots) and hangs it on the chart. The student then writes a fraction for this domino. Next the student uses the pizza fractions to represent the fraction another way. The student is also asked to write a fraction for the amount of pizza that “has been eaten” or is not shaded.

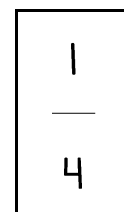
Display the domino and write the fraction.



Choose the correct pizza pieces to show this fraction:



What fraction of the pizza is not shaded or has been “eaten”?



When students convene around the math board, have them practice reading the fractions and be sure they understand what the fractions

represent. Later in the year you may want to introduce the term “equivalent fraction” and challenge students to find equivalent fractions for the domino (i.e., show $\frac{1}{2}$ of a pizza for the $\frac{3}{6}$ domino). You will also want to demonstrate fractional parts of a set, not just parts of a whole. You can demonstrate this by having students stand in front of the group. For example, ask three girls and three boys to stand. Explain that $\frac{3}{6}$ (or $\frac{1}{2}$) of the children are boys and $\frac{3}{6}$ (or $\frac{1}{2}$) are girls. This activity can be repeated many times using different numbers of students and different attributes (hair color, eye color, birthdays, clothing, etc.). Students love this activity and they enjoy guessing the attributes you have chosen.

Materials:

- Large paper dominoes
- Seven sheets of pizza notepaper labeled, laminated, and cut into fractional parts (1 whole, 2 halves, 3 thirds, 4 fourths, 5 fifths, 6 sixths) – velcro or magnetic tape on back

Incredible Equations

The students write 4 equations that all equal the day of school. The number sentences may include any operation. Some examples include the following:

$$(2 \times 50) + 26 = 126$$

$$120 + 6 = 126$$

$$130 - 4 = 126$$

$$20 + 20 + 20 + 20 + 20 + 20 + 6 = 126$$

STUDENT HELPER JOB CARDS

Directions: Duplicate the job cards on the next two pages on two different colors of paper. Laminate and cut cards apart. Punch a hole in each card and bind each set together with a looseleaf ring. When student helpers begin their morning tasks on the math board, they choose a set of cards and perform the activities on the cards in order. Using a system such as this helps students become more independent (they don’t have to ask you what to do next), evenly splits the jobs between the two helpers so that one does not dominate, and ensures that all of the activities are completed before the class begins discussing them.

**Morning Math Board
Job Cards
Set 1**

**1. Put date on
calendar.**

**2. Write date on
chart.**

**3. Fill in yesterday,
today, tomorrow.**

**4. Write the day of
school.**

**5. Circle even or
odd.**

**6. Complete the
hundreds, tens,
and ones chart.**

7. Put up money.

**8. Write the amount
of money two ways.**

**9. Write 2 incredible
equations.**

**Morning Math Board
Job Cards
Set 2**

1. Choose a time card.

2. Set the clock hands and put the time card in ziploc bag.

3. Write the time on the board in two ways.

4. Choose a domino and hang it on board.

5. Write the fraction for the domino.

6. Put up the correct pizza slices.

7. Write a fraction for the amount of pizza that has been "eaten."

8. Write 2 incredible equations.

