History and the Concept of Time

Lessons begin with counting days on the calendar, personal time lines that represent the length of one's own life, how one's life compares to the life of family members, and finally how the year can be divided into parts such as months, quarters, semesters. Exercises for learning clock time are also here along with a wonderful lesson associating the past, present and future with verb tenses.

In the middle is a key lesson called "Christ: the Center of Man's History" or "Why is this 1974 (or the present year)?" The second title is usually the best choice although the lesson must somehow include reference to the Roman's association of the year zero with the birth of Jesus. Once zero has been established, the terms B.C. and A.C. need to be explained and replaced with B.C.E. and C.E. labels. (For awhile Before the Christian Era and Christian Era and now Before the Common Era and Common Era.)

Once this Time Line of Centuries has been introduced, it provides an indispensable tool for locating events in written history. In the Bergamo Montessori school where I observed in the year 1974, this time line was on permanent display on a low table that stretched all along one side of the room. Children were often seen browsing it, reading little notes or placing pictures on it, attending to the relative occurrence of events over time.

HISTORY: TIME

Before offering the child the general overview of history, he must understand several abstract concepts created by man.

We may begin by asking: Think of primitive man who had no knowledge of nature. What were his impressions when he observed the sky? By day a beautiful blue through which passed a ball of fire? By night a darkness which was dotted with small points of light and contained another shining ball of light that grew strangely smaller for a while and then disappeared? What must he have thought about the weather which was sometimes very hot, sometimes very cold, which sometimes sent something white and cold from the sky? What did he learn as he obseerved his children who grew up and became his own size and aged?

Through his experience in the natural world, primitive man gradually acquaints with nature. Out of all the observations that primitive man made, out of the progression of cycles that he began to recognize, there grew a need for a name to describe all of these events. And he called it TIME.

Time is the symbol of mankind's road. Each action leaves a trace---and a succession of actions is called time. Without action, time does not exist. In experimental situations, persons have gone into underground caves alone, in darkness, discovering that the notion of time was soon lost without a succession of events to indicate passing time.

How do we introduce the concept of time?

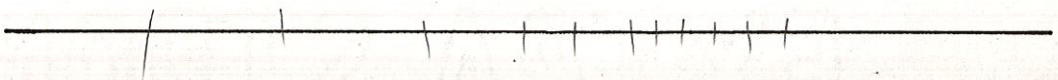
Before the age of 4, there is no concept of time. At a certain point, about $4\frac{1}{2}$, the child begins to use the words "old" and "young". At about 5 years, he begins to distinguish between "today" "tomorrow" and to know that Sunday is different. He also begins to understand what "birthday"is.

So: by $5\frac{1}{2}$ --- the child uses adverbs of time;
at 6 ---- he understands the differences of age, realizing that he is a child;
at $6\frac{1}{2}$ --- he becomes familiar with the hours of the day, the days of the week, to read the clock;
at 7 ---- he realizes the relationship between day, month and year;
and at 8 ---- he knows the seasons and their characteristics

There is, of course, much that we can do to help the child develop his concept of time. The $4\frac{1}{2}$-year-old, when he uses the words old and young, doesn't understand the terms beyond a basic contrast. And so the grandfather, who may only be 40, is "old" in comparison with the child himself or his small sister. We can aid the understanding of time in two ways:

1) through movement, as identified with length of time . . .that is, the length of time necessary to carry out an action.
2) in a geometrical and graphical way.

An EXERCISE for the 6-year-old when he first comes to school:
Present a long strip of paper with a line drawn on it and ask the child to make a mark on it each day when he first comes to school.



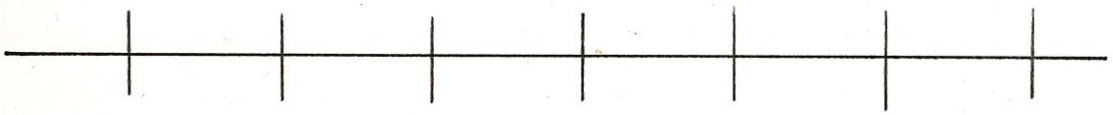
HISTORY:TIME . . .
Exercise. . .

Each mark, then, indicates the passing of one day.

After a time, say: from the time when you make the mark one morning to the time when you make the next mark is always the same exact length of time.

We are going to establish a certain measure for that length of time.
It is important that the distance between each mark be the same because then it shows that exactly the same amount of time has passed.
It doesn't matter what the length of the space between marks is---only that they are the same.
This is a more precise way of showing and measuring time passing.

The child then decides on a standard measure, and on a new long strip of paper with a central horizontal line, he now marks each day with a regular mark.



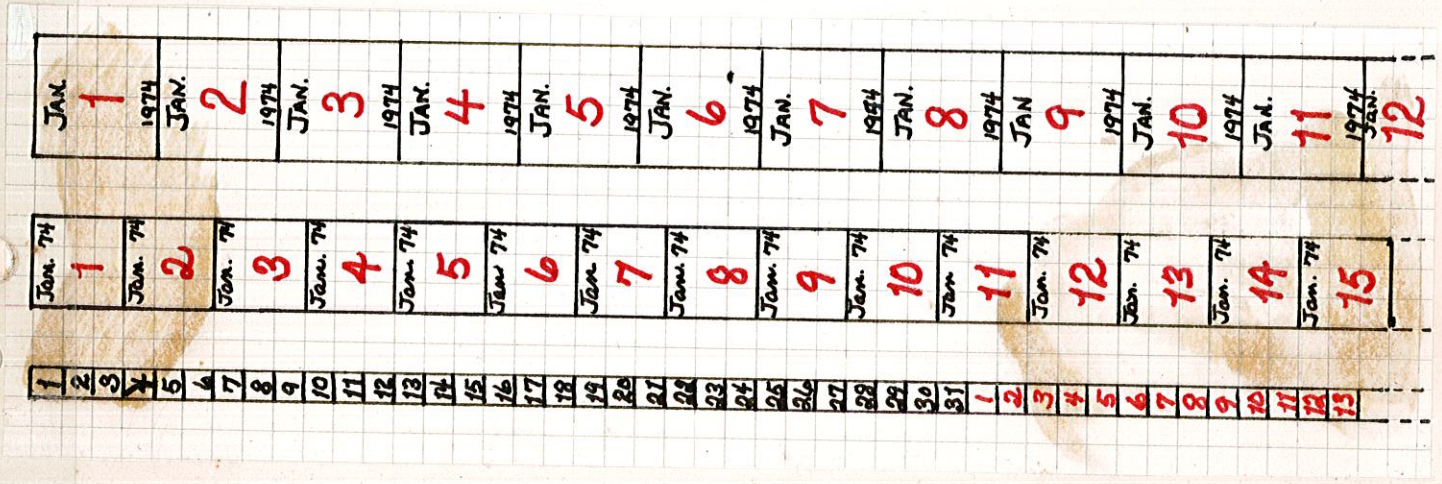
EXERCISE: Calendar charts and One-year Lines

To show that time passes, men measure it in different lengths. The measurement we have chosen here is the day, and it always has the same length.

Direct Aim: The first idea of time presented practically.
Indirect Aim: An understanding of the history of the earth. . .where, even in very short spaces, millions of years can be represented.

Material

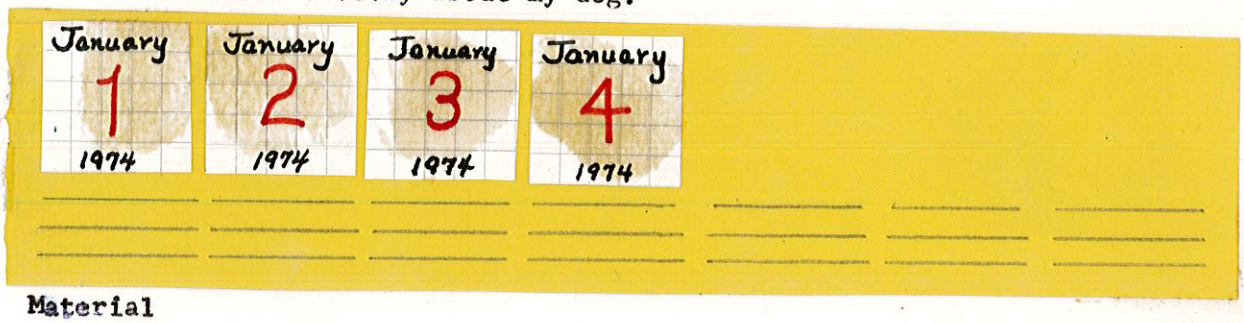
1. A calendar strip made from large calendar numerals; one made of smaller numerals; one of very small numerals.
2. Large and small calendar numerals with which the child can make a horizontal chart.



HISTORY:TIME. . .
Exercise:Calendar Charts and One-Year Time Lines. . .

1. Present the series of calendar strips, calendar pages joined in a vertical strip. Several different sizes to emphasize that:
   Here we have the measurement of the day.
   The day always has the same length.
   But the size of the distance, or the page, chosen to represent that length of time is not important.

2. The child takes the loose pages of a calendar---may use small or large numerals---and pastes them horizontally on a chart. Below he draws lines on which he can note events of the day:
   The sun is shining.
   I wrote a story about my dog.



Material
1. Several one-year- time lines. Calendar strips made from the pages of monthly calendars, joined horizontally. Some larger calendar pages used, others smaller, thinner.

1. Present the calendar strips of different widths and correspondingly different lengths, emphasizing that:
   All of these lines show the SAME PERIOD OF TIME---one year.

2. Note that each calendar has the same number of months and days. . .
   BUT one calendar is very long and another shorter. One is wide and the other much narrower. And another even smaller.

EXERCISE: Personal time line

Material
Graph paper as shown in the illustration. . .child cuts the strips.

1. The child establishes a time line of his own life. He decides upon a regular measure such as the months of his life, and then cuts out the strips needed to show the period in that measure.

2. He pastes it down as a long strip and marks each measure accordingly.
   Example: a child of $7\frac{1}{2}$ years uses one rectangle to show each month of his life, labeling the months and marking each month of May, his birth month, with a red star.

August	1966
Sept.	
Oct.	
Nov.	
Dec.	
Jan.	1967
Feb.	
March	
April	
May	
June	
July	
August	
Sept.	
Oct.	
Nov.	
Dec.	
Jan.	1968
Feb.	
March	
April	
May	
June	
July	
August	
Sept.	
Oct.	
Nov.	
Dec.	
Jan.	1969
Feb.	
March	
April	
May	
June	
July	
August	
Sept.	
Oct.	
Nov.	
Dec.	
Jan.	1970
Feb.	
March	
April	
May	
June	
July	
August	
Sept.	
Oct.	
Nov.	
Dec.	
Jan.	1971
Feb.	
March	
April	
May	
June	
July	
August	1972
Sept.	
Oct.	
Nov.	
Dec.	
Jan.	1973
Feb.	
March	
April	
May	
June	
July	
August	
Sept.	
Oct.	
Nov.	
Dec.	
Jan.	1974

HISTORY:TIME. . .

Exercise: A short history of the child's life

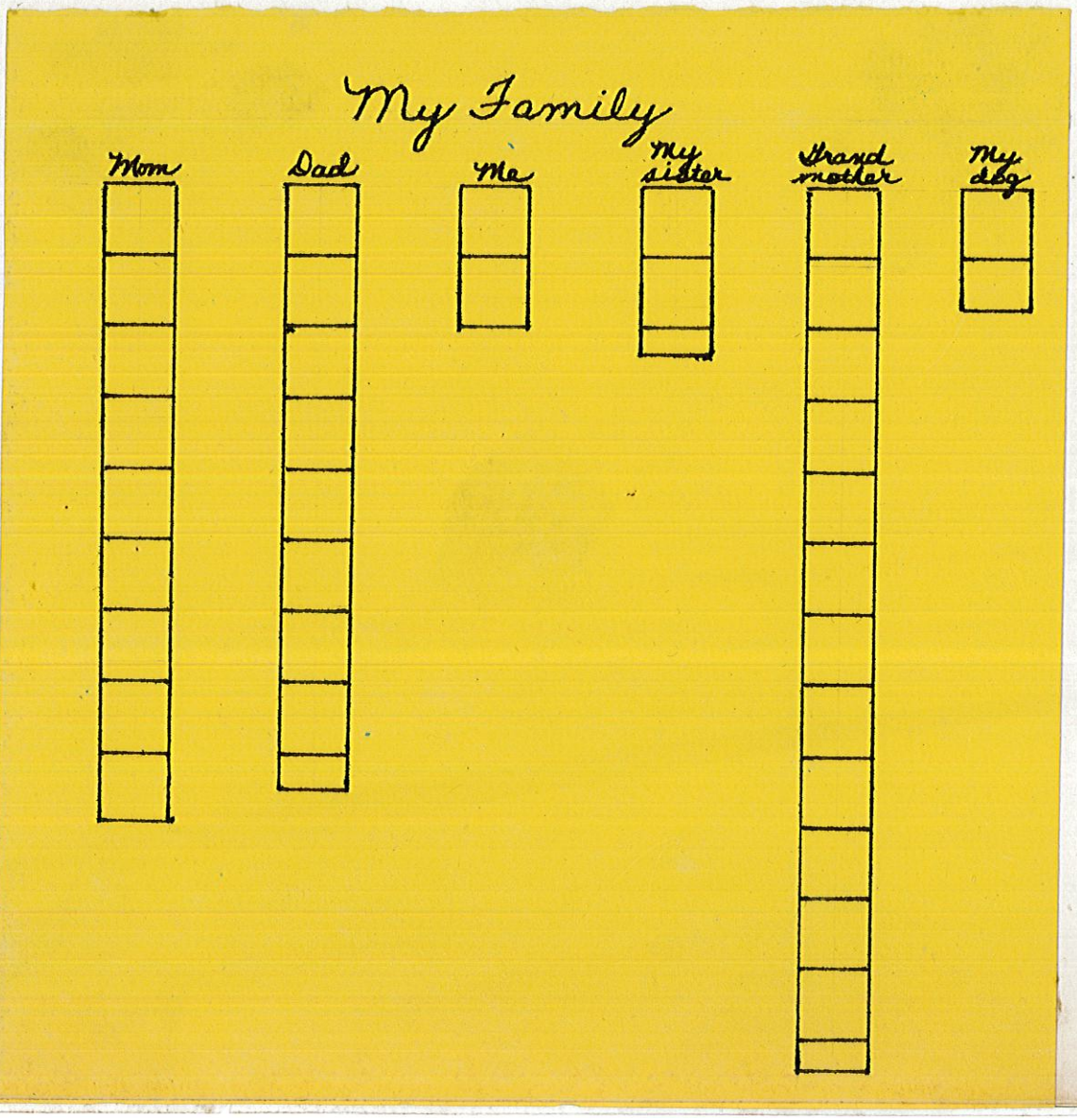
1. The child writes a short story about each year of his life, heading each with the year. He begins with the year of his birth. It may be necessary to help him begin this project by asking his mother about his first years.

2. The child then joins the stories of the years horizontally in sequence to form a short history of his life.

Variation: The child brings pictures of himself for each year of his life, and pastes the pictures on separate sheets which bear the year's number at the top. Then he joins these sheets horizontally to form a pictorial history--- his own picture album.

EXERCISE: A Family Chart

1. The child finds out the age of each member of his family. . .and then shows this on a chart of comparison, using strips to represent the comparative age of each person.



HISTORY:TIME. . .

The Year and Its Parts: The Nomenclature

Material

1. A horizontal calendar strip, the twelve months joined in a horizontal strip all together.
2. The same-sized calendar months, but each one of the twelve separate.
3. A calendar strip of six months, one of four months, one of three months, one of two months. All these should be of the same-sized calendars.
4. The metal insets of the fractions---$\frac{1}{2}$, $\frac{1}{4}$, 1/3, 1/6, and 1/12, the latter must be made since there is not a metal inset 1/12.
5. A series of arrows which give the nomenclature for the parts of the year.

NOTE: This presentation should not be made before the fractions have been presented.

Presentation

1. Show the long calendar strip of twelve months attached.	1. This represents a whole year.
2. Compare the strip to one of the metal inset wholes.	2. One year is considered one unity, one whole. This represents one whole, too.
3. Introduce the 12 parts of the year, using the separate pages of the similar-sized calendar.	3. How many parts are there in a year? How many months? Then each month represents one of the 12 parts. Let's match each of these twelve months to the strip to show that they are the same.
4. Fold the calendar in half and discover how many months are in a half---then display the prepared strip of six months. . . and match with metal inset $\frac{1}{2}$.	4. Now let's divide our year in half. How many months are there in a half a year? Let's count them. Six months is one half a year. Let's use our fraction $\frac{1}{2}$ to show that.
5. Divide the calendar strip into 3 parts, fold the strip, count the months and show the strip of four months and the inset $\frac{1}{4}$.	5. What part of the year do we show when we divide our strip into 3 parts? How many months make 1/3 of the year? Here is the strip of four months that shows 1/3. We can represent that, too, with the fraction 1/3.

HISTORY: TIME. . .
THE Year and Its Parts. . .
Presentation. . .

6. Continue through the presentation of $\frac{1}{4}$ of the year, 1/6 year and 1/12 year in the same manner.

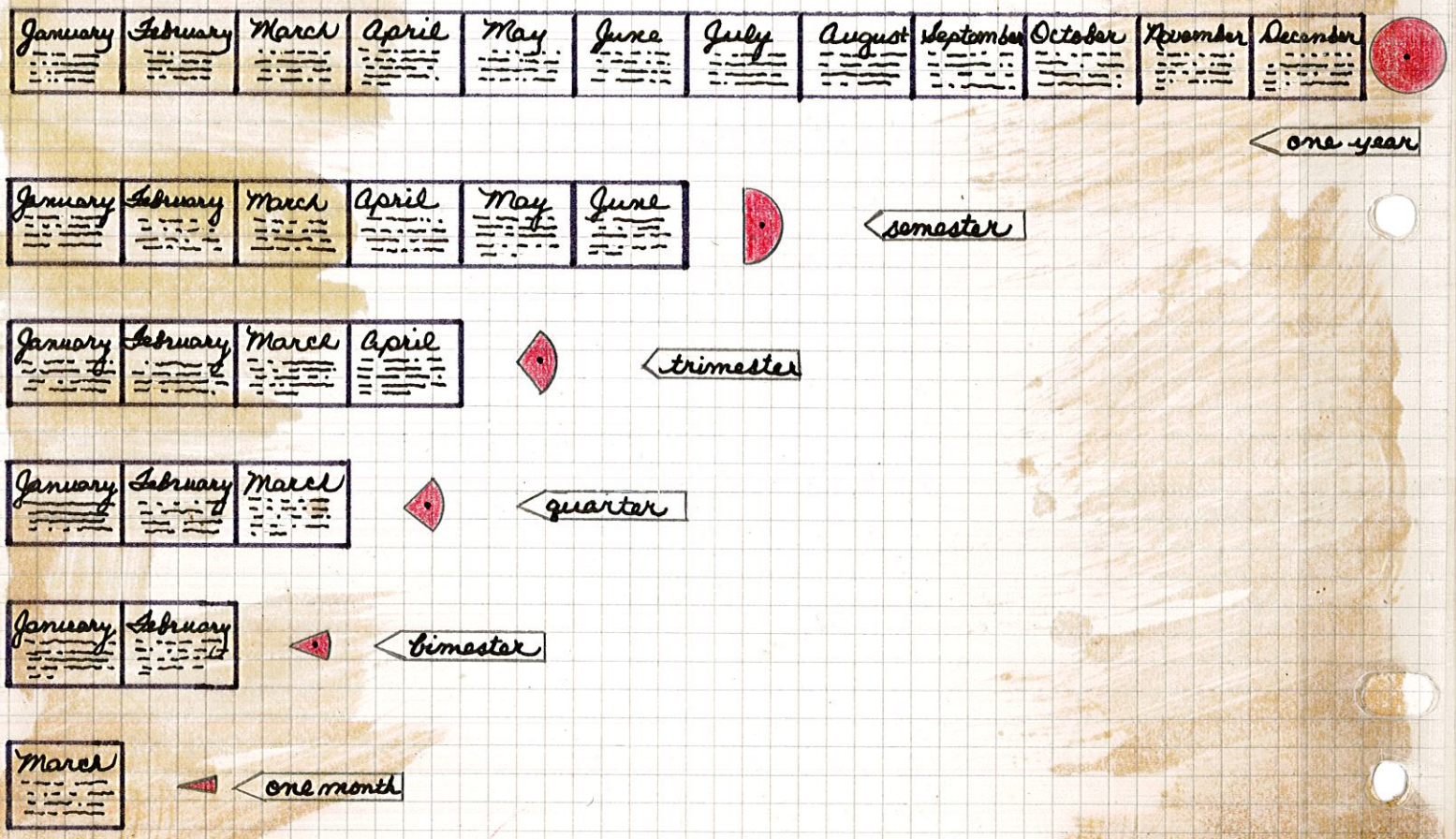
7. Review the parts and what fraction each represents.

7. Two months of the year is 1/6 of the year.
Show me 1/3 of the year.
How many months is it?
What is 1/6 of the year?

8. Give the nomenclature for the parts of the year, displaying the arrow which corresponds to each. Note that the trimest is also the seasonal indicator.

8. What is half a year called?
We call it a semester.
The trimester is 3 months, $\frac{1}{4}$ of the year.
We use the trimester to indicate our four seasons.
One season represents $\frac{1}{4}$ of the year.

9. If the child asks why the year is not divided into 10 parts, ask him to take the number twelve and find out into how many parts it can be divided. Then to take 10 and do the same. A practice in factoring. An interesting exercise to discover the convenience of the system based on 12.



HISTORY:TIME. . .

Christ: The Center of Man's History or Why We are in the Year 1974

Direct Aim: To provide an understanding for the child of why we are in the year 1974.
To give him an orientation in time---in regard to the past, present and towards the future.
To be oriented in the historical dates.

Materials

1. The 1000 chain, nine hundred squares, seven golden tens and a few unit beads, 100 chain.
2. A simple story book of Jesus's life.
3. A simple nativity scene.
4. Slips of paper.
5. Two strips of cardboard, one longer green and one red.
6. White squares of paper which will fit on the cardboard strips.
7. Prepared cards which read 1st Century, 2nd Century, 3rd Century--- up to the 20th Century. There should be two of each. On the back of each card should be written that century's number in Roman numerals.
8. A very long strip of the centuries on which we have indicated many B.C. centuries, then the 1st Century marked with a red flame indicating the beginning of A.D. and 19 more century squares after that bringing the time line to the 20th century.

Presentation

1. Ask the child to bring the quantity 1974 in the large numeral cards. Then have him bring that bead quantity also.	1. This numeral shows the number of the year in which we live. And this quantity represents that number of years. What year is this? How do we read it?
2. Lay out the 1000 chain to represent the cube, then the 9 squares, the seven tens and the four units.	2. If we take apart this cube of 1000, we have the 1000 chain. If we could make a chain of these 9 hundred-squares, we would almost have another 1000 chain. Let's place the hundred squares next in out line, then the seven tens and finally the 4 units. How many do we lack for another 1000 chain?
3. Note that we have represented 1974.	3. With the material we have, we have counted up to 1974. If we could have made this all with chains, we would almost have 2000. But WHY are we living in 1974?

HISTORY:TIME. . .
Christ:The Center of Man's History. . .
Presentation. . .

4. Explain 1974 as marked from the time of Christ's birth.	4. We always speak of millions & millions of years that have passed since the formation of the earth. Why then do we say only 1974? Something very important must have happened 1,974 years ago to make us begin counting our time at that point. 1,974 years ago Jesus Christ was born.
5. Read the children a simple account of Jesus's life. Historical information, but important as an event of great significance, too.	5. At that point in history, a child was born called Jesus.
6. Now put away the original bead display and build a bead time line in which every bead represents 10 years: the 100-chain, nine tens, and seven units.	6. Since we know that we have to consider many more years in the history of the earth than we have shown here with the beads, let's construct a new time line with the beads in which each bead represents 10 years. Then how will we show 1000 years? With the 100-chain. We can use nine ten-bars to show the next nine hundred years. And seven units to show the next seventy years.
7. Place the small nativity at the beginning of this display. And place the large numeral cards at the end of the chain.	7. At the beginning of this chain, now, we will place this small nativity to show that it is from this event that we begin counting our time. At the end of the chain of beads, let's place the numeral cards to show the year now.
8. Point out the great length of time before the birth event.	8. Did anything happen before Christ? We know that men lived and that there was history. You may take as many 100-year bars as you wish to show the time before the birth of Christ. It should be much longer because the time is much longer.

HISTORY:TIME. . .
Christ:The Center of Man's History. . .
Presentation. . .

9. Introduce the terminology and then the abbreviations for the before and after time periods. First write the words on a slip and place properly on the bead line---then substitute the abbreviations.	9. What do we call those years before Jesus was born? "Before Christ." And those years afterwards are called "After Christ." Instead of writing these each time, here are the abbreviations we use. "B.C." stands for "Before Christ." "A.D." stands for "Annis Domini" which means "The year of the Lord."
10. Now remove the bead line, and substitute the green and red strips of cardboard---green before the nativity and red after. Note the length of the green strip. Place an arrow showing figures and labeled "this year" at the end.	10. Here are two strips which we can use to represent these two periods of time. Why is the green strip much longer? The color green stands for hope, and red signifies blood. At the end now let's place this arrow to show that this is the year in which we live.
11. Show the centuries first with white squares of paper, placing the squares on the two strips, one on each side of the Christ event simultaneously to show the centuries stretching out in both directions. Continue through 20 in both directions.	11. Let's take these white squares to show the centuries before and after the birth of Jesus. A century is 100 years.
12. Then place on top of each square a card naming the century---and note the Roman numerals on the reverse side.	12. These cards show the name of each century. We call this the First Century A.D. Here is how we write it: 1st Century Sometimes the centuries are written with Roman numerals. We can find the Roman numeral on the back of each card. Now let's place on top of each of the squares these cards which tell us the number of the century. First we have the 1st Century A.D. And we also have the 1st Century B.C. What is the last century we can show after the birth of Jesus? Is it the last century before? Then we can go on counting the centuries B.C.

NOTE: the strips should be raggedly cut at both ends to show infinite time in both directions.

HISTORY:TIME. . .
Christ:The Center of Man's History. . .
Presentation. . .

13.	In order to provide a permanent reference for the time strip which the child has now constructed, present the time strip---a long narrow strip on which the centuries are squared off, before and after the birth of Jesus. That point on the strip is marked with a flame. The strip is very long stretching into the B.C. centuries and to the present.	13.	This long strip shows the time line that we have constructed here on the red and green strips. Let's stretch it way out across the floor. Can you find the point of the birth of Jesus? How many centuries come after that? Why is the strip longer before? Can you find the 3rd Century B.C.? Can you find the 3rd Century A.D.? This time line will help us locate many events in history.
14.	Review the years which correspond to each century.	14.	When we want to locate the year 1875, during which century do we look? What year is this? What century? Where do we find it?

The Clock: Orientation in One Day
Direct Aim: To be sure that the child knows how to read the clock.
Material

1. A cardboard clock with gold hands and numerals---the hands move.
2. A golden paper strip exactly the circumference of the clock, with divisions marked on it in black to show each hour.
3. A rubber stamp of the clock face without hands.

Presentation

1.	Introduce the cardboard clock.	1.	Each number on the clock represents one hour of the day. There are 12 hours in the day and 12 hours in the night. 24 hours makes one whole day.
2.	Show the golden strip which is the circumference of the clock, and note that the same time can also be represented on the strip.	2.	Our clock is round, but we can represent that same period of time with this strip. This thin golden strip is the same as the circumference of the clock. Our clocks are round because they are smaller and more convenient. But we have shown the hours on this strip, too. Can you find one hour on this strip?

HISTORY:TIME. . .
THE Clock:Orientation in One Day. . .
Presentation. . .

3. Rehearse the child's daily schedule, showing each event with the hands on the clock---moving them both together. Move the clock hands all around the clock in this way.	3. What time do you get up? Here is 7:30 on the clock. What time do you come to school? This is 8:30 on the clock.
4. Note the difference between the same hour daytime and nightime.	4. Do you have dinner at 7:00 at night or 7:00 in the morning? What time do you go to bed? Is that 8:30 at night or in the morning? Can we tell the difference by just looking at the clock?
5. Using the strip laid out flat on the mat, give the child a series of small arrows with which to mark the events in his day on the strip.	5. We can also mark each of the hours we have mentioned on our time line. What time did we say you got up? Can you mark that time on the strip with an arrow? You write that hour like this: 7:30. Now, in your notebook, you can write 7:30: I get out of bed.
6. When the child understands the hours well, introduce the work of the second hand.	6. Each hour is divided into 60 minutes. The short hand on the clock only moves between two numbers to show the hour passing. But the long hand travels all the way around the numbers during one hour---each hour. In this way it shows us the minutes passing. When it arrives at 1, 5 minutes have passed. At 2, 10 minutes have passed. When is arrives at 6, 30 minutes have passed and that is one half the hour.
Note the half hour and the quarter hour.	I say: half an hour, meaning 30 minutes. If we divide the hour into four parts, how many minutes will be in each part? Let's count 15 minutes on the clock. . .5, 10, 15.
7. Show the half and the fourth of the whole hour with the metal insets.	7. We can show the half hour with this half. Which fraction do we need to show 15 minutes?

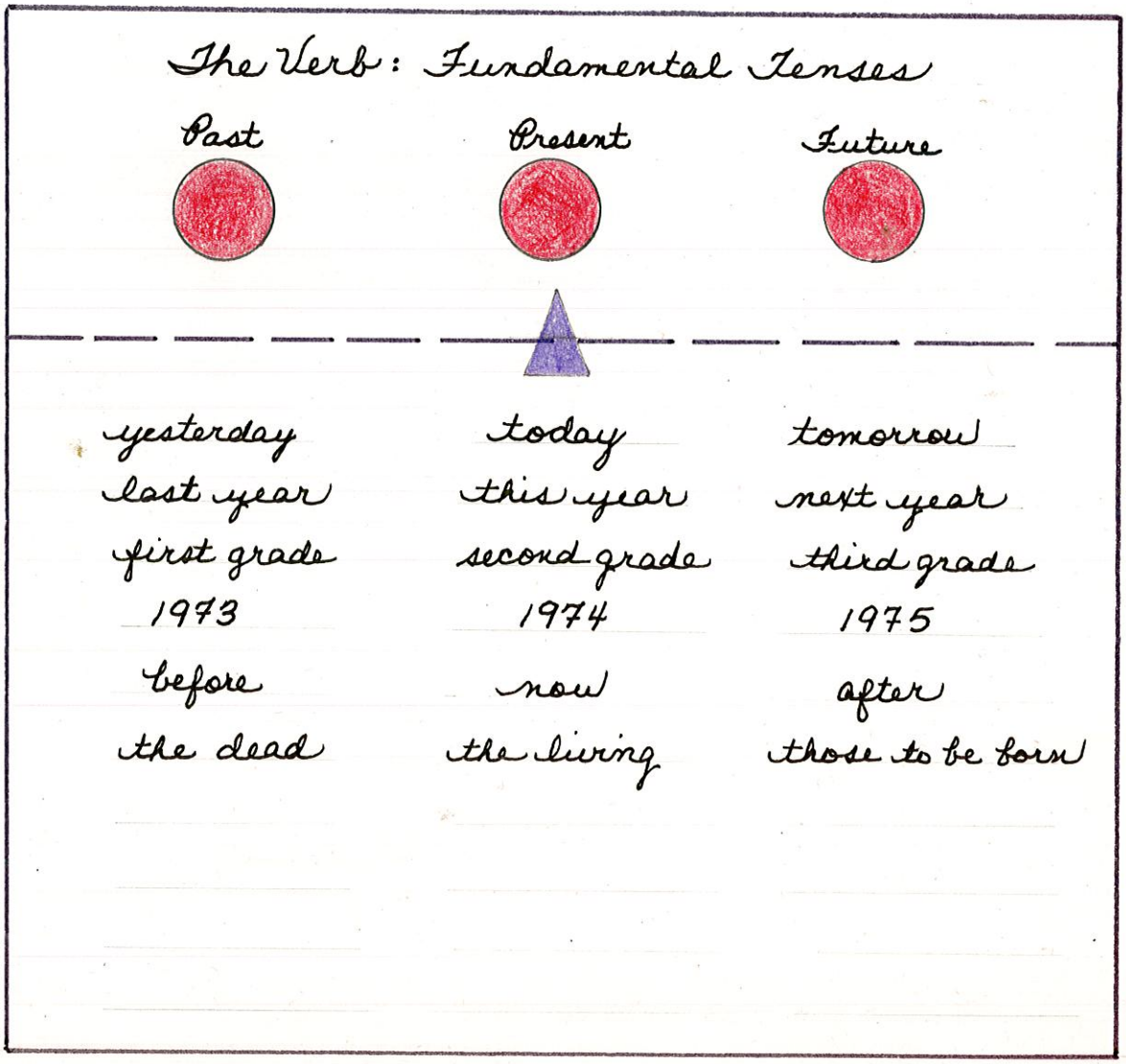
HISTORY:TIME. . .
The Clock:Orientation in One Day. . .
Presentation. . .

8. The clock stamp is introduced after the clock has been thoroughly understood. With it the child can make a series of stamps on a sheet, or in his notebook, to show various events in his day. When he first arrives at school,
   he makes a clock stamp,
   draws in the clock hands to show the time,
   then writes: I came to school.
   Throughout the morning he can make additional stamps, draw the hands and note the event.

HISTORY AND GRAMMAR

Direct Aim: To show grammar as related to history. . .that is, the verb as an indicator of time. We analyze the tenses of the verb to see how it indicates this sense of time.

Material: A Chart



HISTORY AND GRAMMAR. . .

Presentation: Group

1. Introduce the chart, noting the significance of past, present and future.

1. If I say the word "today," is it the day we are in, the day before this one or the day after.
When we say today, it is the day we are living in.
We call that the present.
The word is written in the middle of the chart here.
The "past" is before today.
What do we call the day before this one?
The "future" is time which comes after this.
What word do we use to describe the day after this one.

2. Begin by writing today, tomorrow and yesterday in the columns under the corresponding heading on the chart. Then proceed to add other words which indicate past, present and future.

2. Then we can write "today" here in the middle column under present.
"Yesterday" under the past.
And "tomorrow" under the future.
When we talk about the year we are living in, we say "this year."
What do we call the one before this?
The one after?
What class are you in now?
What class were you in last year?
What class will you be in?
So the 3rd grade is the future for you.

3. Pass to a discussion of the verb conjugations.

Note that the verb tells "when" an action is performed.

3. If I say "I eat" it is in the present tense.
"I ate" is the past tense.
"I shall eat" is the future tense.
The verb tells us when an action is performed.

4. Either add some of the verbs showing the three tenses on the chart or begin another chart on which the conjugations in the tenses can be shown. Hang both charts in the classroom so that the children may add to them.