



Developing Thinking and Reasoning Skills in Primary Learners Using Detective Fiction

Curriculum Unit 95.01.05
by June Pellegrini

Unit Objectives

Reasoning and Problem Solving-a Framework for Thinking

There is currently in schools a great movement that places major emphasis on higher order skills; these being those skills that encourage the ability to reason. This group or hierarchy of skills involves recalling information, basic concept formation, critical thinking, and creative idea formation. Formerly viewed as the tools of mathematics, these skills are now recognized as crucial to competence across the curriculum.

Higher order thinking skills are now recognized as important for those who will enter the twenty-first century work force, where the information age will require individuals who are flexible, dynamic, and resilient. Preparing young learners for their future requires that teachers employ a great deal of inventiveness and creativity in designing lessons that meet the dual challenge of providing the basics (as in reading, language arts, and mathematics), and developing the ability to reason.

This unit uses detective fiction to address both of these challenges, and the activities that lie herein are designed to draw the learner along a path that moves him from the simple skills, such as recalling information, to the more difficult area of creative thinking. Activities may be modified, simplified, lengthened, or deleted to meet the needs of the intellectual diversity found in most classrooms.

For this unit I have chosen three separate series of children's detective fiction. The easiest to read are the Private Eyes club mysteries, written and illustrated by Crosby Bonsall. This series centers around the activities of four neighborhood boys who along with their cat Mildred keep the area they live in free of crime. Each title is centered around one issue and the list of titles is expanding. The reading levels range from about 1.6 to 2.0 and the print is large and well organized on the page. Snitch, Wizard, Skinny, and Tubby are funny and engaging, and are represented in lively color illustrations. The only issue that could be a problem is that the private eyes are all boys. However, girls are well represented among the peripheral peer group.

Next in order of reading difficulty is the Nate the Great series, written by veteran children's author Marjorie Weinman Sharmat. Nate the Great is a Sherlock Holmes type character who wears a raincoat and a hat and speaks of himself in the third person. Nate loves pancakes and works with his dog, Sludge. These books are

illustrated on every page, about half of them in color.

Written by David Adler and illustrated by Susanna Natti is the Cam Jansen series. Cam Jansen is a fourth grader with a photographic memory and an insatiable curiosity. She and her friend Eric Shelton work together to solve crime using detailed tracking and Cam's photographic memory as their tools. One difference between these titles and the other two series is that Cam and Eric solve real crimes committed by adults. Cam and Eric often work with the police and deal with a very real sense of danger. This is the most challenging of the three series chosen, with reading levels that range from 2.6 to 3.0.

Along with the aforementioned thinking skills there are other more social kinds of knowledge characteristics that will be important to those entering adulthood in the years beyond 2000. These characteristics include being sensitive to changes in the environment, seeking out ways to elicit change, being intuitively sensitive to issues of moral responsibility, and being a flexible and caring individual, someone who is capable of developing positive interactions with those around her. The moral dilemmas found in the chosen selections become a springboard, encouraging children to develop in these social skill areas.

It is worth spending a moment to review the specific abilities that lead to reasoning. Thinking is a complex process, and its specific deviations, or parts, are not distinct. Each increasing level of the hierarchy of thinking makes use of the skills contained in lower levels, and the art of thinking requires interaction among all the levels.

Recalling information is a skill that is almost automatic in nature. For each learner, the recall block is different. As children continue to make associations in early life the recall block expands to accommodate this increase in information. For some primary students the recall block might include basic addition facts or the understanding of letter sound relationships. Yet there can be same age children who have not committed these facts to their recall memory block, and therefore cannot call up this information as needed.

Basic thinking includes the understanding of simple mathematical concepts (such as addition and subtraction) and decoding print. Basic thinking also includes tasks such as looking up vocabulary in a glossary or simple, single criterion classification. Applying these skills in everyday situations in and outside of school is also a basic thinking function.

Critical thinking examines, relates, and evaluates all aspects of a problem or situation. This category of thinking includes those skills that engage the learner more actively. Using critical thinking, the student focuses on problems that may require two or more steps. It is here that information is gathered and organized, tested (validated) and analyzed. A student engaged in critical thinking makes use of prior knowledge and makes associations that connect the problems with previously learned information. When children engage in a comprehensive understanding of literature, when they distinguish between valuable and extraneous data, and when they develop a full understanding of what a problem is asking of them, they are demonstrating critical thinking. Critical thinkers look at solutions and ask if they are reasonable; do they make sense in light of the data presented? The inherent nature of critical thinking across the curriculum is reflective and analytical.

That thinking which is stunningly original, starkly effective, and productively complex is creative thinking. Children functioning at this level are inventive, intuitive, and imaginative. It is here that children synthesize, generate, and apply their ideas. Learners working at this level find different and unusual ways to combine information and they formulate new and alternative combinations from old ideas; going outside the nice dots to find solutions. When creative thinkers apply their ideas, they are determining the effectiveness of their

thoughts.

It is possible to hone judgement and intuition in children using curriculum that is engaging and meaningful. Young learners do not arrive at our classroom doors with the ability to focus clearly on the exact nature of solution finding. But they are receptive to their own thoughts and ideas as well as those of their peers. When given the chance to focus and when presented with a framework for displaying their ideas, children will become excited about problem solving. The value of the tasks involved becomes the prime motivation.

The advantage of a multidisciplinary unit is that it engages learners across the curriculum allowing them to immediately demonstrate what they are learning in new contexts. The sustained narrative of chapter books is only a part of what makes them more challenging to primary students. Using these chosen selections the lengthy plot development combines with the ever present question of criminality to provide a meaningful basis for prolonged engagement by the learner. Using the whole group and small group strategies that follow will make these selections more accessible to all readers, while at the same time encouraging students to work harder and increase their involvement.

Language Development

Young learners often begin school with a limited set of ideas. Even though there is a great drive to share with the teacher much of their lives, many young children (when given opportunities to speak and write) choose to emulate their peers (or close down!). These children need a common platform of interest so that they can see idea-making thought processes modeled for them. Using detective fiction provides that common interest, while at the same time providing for a broad base of curriculum ideas.

The areas of language development important to primary children are speaking, listening, writing, and thinking. Because these learners are at the emergent stage of the writing process, activities need to concentrate on those skills that precede and help develop writing. It is therefore vital that this unit provide a variety of activities that make use of spoken language and thinking skills. When children work together on strategy, they become sensitive and unlock more of their thoughts, as the atmosphere for sharing is now less threatening. Thinking and idea sharing together heightens awareness of the characters, feelings, problems, and solutions of the literature. Children will begin to look at common things in uncommon ways. As their involvement in the genre increases, the students will develop an interest in other books of this type and will seek out other books within the same series. Children will begin to derive pleasure from manipulating words and ideas, and will become excited by this power as they form and change new ideas together.

Sustained Commitment to Learning

Another reason for developing and teaching this unit is to foster in young learners the ability to commit to and stay with a project. Each year the children who enter school seem to be less able to deal emotionally and socially with the school climate. Attention spans seem shorter and the block of prior knowledge is shrinking. There is often in these learners an inability to distinguish between reality and fantasy, due to extensive television viewing. Rather than coming to school with a variety of experiences, children are socially and emotionally bound by the limited scope and sequence of a few popular network television programs and a handful of movies. They are already conditioned to sit still only as long as they are being entertained, and have not developed the capacity for sustained thought. Many children have developed a habit of watching life, rather than creating and participating in life's activities.

But most of all, children today enter school without the ability to spend time by themselves. Any primary

teacher will relate the scenario of not being able to turn her back on the class, or of not being able to create cooperative groupings because the students do not have the capacity for independent thought. It is my main objective that the strategies in this unit will help students to become more independent thinkers and workers. The literature I suggest is a higher reading level than that which many early elementary children can decode. But used cooperatively and with the whole group, along with creative teaching strategies, the selections will encourage sustained commitment from all learners.

Strategies for Academic Success

In this section I will focus on the general teaching plan, which provides the basic structure for exploring the detective fiction chosen. The various strategies can be adapted to all the potential readings, which include the Crosby Bonsall series (The Private Eyes Club), the Nate the Great series, and the Cam Jansen series. When teaching upper elementary grades (3rd through 5th), these strategies and ideas can be readily adapted for use with The Boxcar Children, Encyclopedia Brown, and The Last Chance Detectives.

Following this generalized section on literature strategies is a section with specific activities. The specific activities often refer to and connect with specific ideas generated in the selections. Both the strategies and the activities that follow are flexible, allowing for their use with other titles within the various series.

Before Reading—Building Interest in the Mystery

Building background is crucial for developing an interest in literature. When young learners ease gently into new situations they become more readily able to accommodate new ideas. Before beginning any book, take time to familiarize the students with the characters, setting, and plot. Thinking about who, what, and where not only sets the tone but takes some of the pressure off the learner. Building background provides the learner with a comfortable base upon which to develop ideas.

- Using chart paper and markers, introduce the book to the children. Write down the title and the author, having the class help with this process. Change the color of the markers often so that the print is more easily tracked. Ask questions. Have we read anything else by this author? What do we already know from the title?

- Open the book and read a couple of sentences from the first page. Begin to skim through the book, stopping to look at any illustrations. (Cam Jansen, Nate the Great, and the Crosby Bonsall books all have illustrations.)

- Make a list of “interest” words, those which cause curiosity. This should not be a list of entirely new vocabulary, because that would not serve to engage the student in wanting to read the story. These interest words should be words that cause the reader to ponder and question. As you record these words on chart paper, leave adequate room around each word, so that you can go back and add supporting ideas while reading. What you are doing is creating a framework for discovery that serves to further engage the reader.

- On another piece of chart paper invite the children to make predictions based on the appearance of the book and the information gleaned so far in building background. Record some of the predictions, mainly those which are distinct from each other.

- Now it’s time to ask questions. Ask your students, “What do I want to find out while I read?”

Remind them of the illustrations and the list of interest words. It is important that each child produce at least one question and that each question be recorded on chart paper using markers. You are now producing a rainbow of questions which set the tone for student involvement during reading.

Get a packet of small “Post it” notes. As you read the selection with a view toward finding out answers to the questions previously generated, you will mark the pages with stick-on notes. Write on these notes a couple of words which tell why they are interesting or important.

During Reading—Just the Facts Please

-Get out large sheets of construction paper in a variety of colors that can be written on. Label each sheet of paper with each of the chapter headings in the story. After you read each chapter together, go back and review the facts. As you do this write down the new information, events, and characters that have emerged in the chapter.

-As you read, you will make another chart entitled “Who, what, where, when, how, and why.” Pause often during reading to fill in this chart (color coding each section). As it fills up, this work will provide a variety of ideas and thoughts. Get the children speculating about the facts as they are presented by the author. The “who, what, where, how, and why” chart is broader in scope than the chapter charts in that it unites information across chapters. At this juncture the children will now begin to generate contrasting ideas, make comparisons, and develop moral codes as they note details in the story.

-Another chart you can make as the story unfolds is the “who done it” chart. Encourage learners to be creative and take risks as they develop ideas about the rationale behind the criminal. Encourage a discussion of moral issues and get the children to speculate about the “rightness” or “wrongness” of the crime, based on the various reasons possible for committing it.

-Children can also keep a personal detective journal or story diary. They should date each entry and record the facts as they present themselves during reading.

After Reading—Who Did it and Why?

Engaging the children in a variety of post-reading activities serves to sustain their interest and encourages anticipation of the next book. These activities also help learners to remember what they have read.

-Children can speculate and write about another character who could have committed the crime.

Changing the “who” and “why” facts forces students to justify their ideas with creative thoughts of their own. Scenes can be recreated where altering one small piece of evidence allows for the inclusion of an entirely different suspect. Again, this allows for a discussion of moral issues, as learners will need to also provide the “why facts” for their new criminal. Children can write letters, either to the hero (Nate the Great, Cam Jansen, Private Eye club kids), or to the criminal. In writing to the story detective(s) they can make themselves become the assistants (Watson, etc.) and share the facts of the case as they see them. Letters to the criminal can focus on advice (encouraging surrender), or a statement of possible facts designed to flush him or her out. Again this is a great activity for discussion of the moral issues at hand.

-After reading several books within the same series, children can create biographical sketches of the hero detective. This encourages them to recall and think about character traits. It might be appropriate to create portions of the character’s life, such as his/her background and family in order to present a detailed portrait.

-Students can become newspaper reporters and write about the case either as it progresses, or in summary. This encourages the writers to recall and deliver accurate facts as well as demonstrate brevity in their writing.

-Children will have fun writing the copy for a network newscast about the case, and read their copy “on the air.” If there is a video camera available, great! If not, photographs work too!

-Learners benefit from recreating the story through drama. Acting out stories in primary classrooms is wonderful for several reasons. Children cooperate with each other, because success is dependent upon a unified effort. Acting out also provides the opportunity to reflect and experiment with the more delicate intricacies of each characters personality. Here children experiment with traits such as gruffness, coolness, warmness, sweetness, and aloofness.

Scope and Sequence

Just as every child is unique, every classroom functions differently. Following is one idea for integrating the strategies from this unit into the classroom.

Week One—The Case of the Dumb Bells by Crosby Bonsall

Build background and set a purpose for reading by previewing the selection and choosing from the before reading activities. Make a list of interest words and use them in sentences. As you read portions of the story, develop a sequence chart made of colored paper that lays out the action using simple word phrases. The students can create a classroom newspaper that talks about the unfolding drama of the neighborhood doorbells ringing, and how the case is resolved. For math, use base ten rods and the accompanying worksheets which feature the book characters to work on the concept of tens and ones. Do many activities which utilize base ten rods to develop an understanding of our number system.

Week Two—Nate the Great and the Stolen Base by M. Weinman Sharmat

Again, take the time to familiarize the students with the characters, setting, and plot. Encourage the children to become more involved by making their own predictions about the selection; after all now they have a prior

experience with detective fiction. Make a classroom prediction big book to display. During reading make a “Who, what, where, when, how, and why” chart as the plot unfolds. Have the children make a bibliographical sketch of Nate the Great drawing from what they have read about him. Help them to pursue the unknown possibilities as if they lived next door to their hero detective. For math, work on logic and problem solving using teddy bear counters. Because these are plentiful, teddy bear counters are good for acting out math scenarios involving all of Nates friends.

Week Three—Cam Jansen and the Mystery of the Circus Clown by David Adler

By now the children should be more independent in their quest for background knowledge. As you preview the selection together the classroom may be ready to develop their own list of questions to ask before they read. As you read the story to them, encourage the children to keep a personal detective journal. They should record the facts and refer to the questions they asked and the ideas they generated prior to reading. Learners can write a letter to Cam Jansen asking what it is like to have a photographic memory, or write to Eric and find out what makes Cam such a good friend. For math you can work on developing number sense by doing the accompanying worksheets or creating your own, using Cam and her friends as motivational cues.

Activities

The following activities extend the literature to other areas across the curriculum. An overview will be presented first which details how to use the activity. Following this overview are the worksheets, etc. required to carry out the teaching plan.

Poems

Young children need a variety of language experiences. When emergent readers chant a rhyme or sing a song they begin to feel the tempo, or natural rhythm of language. If the poem or song is printed clearly on chart paper, eager learners will make connections between oral language and reading. Chanting and singing also affords an opportunity for success with the child who is struggling with language development, and engages the bilingual student. Following are two poems and a song about the detective characters in this unit.

Cam and Eric

Cam Jansen has a special trick
It happens whenever she says click.
Whatever she sees stays in her brain
Her way is keen-she’s highly trained.
Eric is a friend who helps Cam out
When Cam needs him she gives a shout.
Eric and Cam gather the facts
But when there’s trouble-they make tracks!
Eric and Cam will find the truth
There’s no one they cannot out-sleuth!
They know solving puzzles is fun
Two heads are always better than one!

Nate the Great

(Sung to *Twinkle, Twinkle Little Star*)

Nate the Great has lots to do
So he can solve the case for you.
Search the block and find the clues
Get the facts and tell the news.
Nate the Great will pass the test
He'll solve the case; he's the best

Private Eyes Club

Build a clubhouse, check it twice
Room for four is pretty nice
Wizard, Skinny, Tubby, and Snitch
Move right in and make the switch,
From busy friends who run and play
To private eyes who save the day
On the job both day and night
The Private Eye Club is out of sight!
They'll help me, they'll help you too
If you have a job to do.
Their friends think they are really slammin'
The Private Eye Club is really Jammin'!

Math Connections

Nate the Great activities

For making connections with the *Cam Jansen* books this unit uses math activities that develop number sense and arithmetic skills. This is important because too often children apply rote memorization to the solving of basic addition and subtraction, yet have no understanding of the value of the numbers they are using to calculate.

The following activities help children develop an intuitive understanding of number relationships through making judgements about the reasonableness of answers. After reading the problems with your students, direct their attention to the accompanying box of numbers. Encourage the children to experiment and make contrasts about the possible solutions before they fill in the story blanks.

These activities can be used with cooperative grouping, as independent work, or you may enlarge these number sense stories for use with the whole group.

NATE THE GREAT ACTIVITIES

The Nate the Great math activities are a set of math and logic problems that use teddy bear counters as manipulatives. Using concrete objects such as these helps students to develop logical reasoning skills and builds confidence.

These activities may be used with the whole group, small groups, or independently. If you pair your students with older children as learning buddies, using these activities will facilitate cooperative reasoning and thinking. If you are using teddy bear counters for the first time, be sure to provide an “exploration and discovery” period.

Read each story two or more times with your students to be sure they are familiar with the language. Discuss what the problem means and make sure all students understand the vocabulary.

As children begin to work on the problems, encourage them to act out with the counters several possible approaches to finding a solution. You may have a sharing time where children discuss their approaches to problem solving, or have children record their findings using pictures and words.

COOPERATIVE PROBLEM SOLVING WITH BASE TEN BLOCKS AND THE PRIVATE EYES CLUB KIDS

Cooperative learning involves a small group of students working together toward a common goal. With the Private Eyes Kids, the goal was to solve detective cases. The kids had to work together and draw on each other’s strengths to accomplish their goals. Using the characters of the Private Eyes Club, these activities will serve to develop cooperative skills while solving problems using base ten blocks.

These problems are designed to be used in groups with no more than four members. If there are fewer in the group, then students may work on more than one section of the problem.

Make sure your students are familiar with the names of the base ten blocks and give them time to explore these manipulatives. For each group you will need to provide base ten blocks and one copy of the activity sheet. Each sheet contains one problem divided into four cards. Each card is has an upper and lower part separated by a dark line. Any instructions shown on the top of the card are for the student who is holding that card. Any instructions on the bottom part of the card are for the whole group. Children should solve the problem using only the blocks they have been told to take. I have included a blank Private Eyes Club master for additional teacher created activities.

CAM, ERIC, AND FRIENDS FACTS

(figure available in print form)

FIELD DAY

(figure available in print form)

CAM AND HER FRIENDS GO CAMPING

(figure available in print form)

CAM AND ERIC LEARN ABOUT THE SKELETON

(figure available in print form)

NATE AND ROSAMOND'S AEROBICS CLASS

(figure available in print form)

NATE'S BIRTHDAY PARTY

(figure available in print form)

ROSAMOND'S POPCORN SALE

(figure available in print form)

NATE'S NEIGHBORHOOD TENNIS COURT

(figure available in print form)

SHOWING NUMBERS

(figure available in print form)

SHOWING NUMBERS IN DIFFERENT WAYS

(figure available in print form)

SHOWING DIFFERENT NUMBERS

(figure available in print form)

MASTER FOR TEACHER CREATED ACTIVITY

(figure available in print form)

Juvenile Bibliography

Adler, David A. *Cam Jansen and the Mystery of the Babe Ruth Baseball* . New York: Puffin Books, 1991.

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Adler, David A. *Cam Jansen and the Mystery of the Gold Coins* . New York: Puffin Books, 1982.

Adler, David A. *Cam Jansen and the Mystery of the Stolen Diamonds* . New York: Penguin Books, 1980.

Bonsall, Crosby. *The Case of the Cat's Meow* . New York: Harper Trophy, 1978.

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Sharmat, M. W. *Nate the Great* . New York: Dell, 1981.

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Sharmat, M. W. *Nate the Great and the Sticky Case* . New York: Dell,

Sharmat, M. W. *Nate the Great and the Stolen Base* . New York: Dell, 1994.

Sharmat, M. W. *Nate the Great Goes Down in the Dumps* . New York: Dell, 1991.

Sharmat, M. W. *Nate the Great Goes Undercover* , New York: Dell,

Sharmat, M. W. *Nate the Great Stalks Stupidweed* . New York: Dell, 1989.

Professional Bibliography

Ellis, Susan S. and Whalen, Susan F. *Cooperative Learning Getting Started* . New York: Scholastic, 1990. This book provides a basic how to approach to beginning cooperative learning situations in the classroom. Much emphasis is placed on social skill interactions and cooperative learning assessment.

Greenes, Carole et. al. *Thinker Math-Developing Number Sense and Arithmetic Skills* . Sunnyvale, Ca.: Creative Publications, 1989. A collection of blackline masters separated into sections by mathematical content for grades 3 and 4. The activities are based on thematically related stories from across the curriculum and can be adapted for content and ability level.

Goodnow, Judy & Hoogeboom, Shirley. *Reasoning With Teddy Bear Counters* . Sunnyvale Ca.: Creative Publications, 1989. This is a set of math and logic problems for grades 2 to 4 in which the emphasis is on problem solving using teddy bear counters as manipulatives. The book is divided into 10 sections, each emphasizing a different strategy for problem solving.

Goodnow, Judy & Hoogeboom, Shirley. *Cooperative Learning With Base Ten Blocks* . Sunnyvale Ca.: Creative Publications, 1991. This is a collection of 70 problems for grades 2 and 3. The problems are designed to be solved in small groups of 2 to 4 students. Each student in the group has an important piece of information and only through sharing can students solve the problems.

Nierenberg, Gerard. *The Art of Creative Thinking* . New York: Fireside,1986. Set up as an at-home workshop for adults to become more creative problem solvers, this work contains a step by step set of exercises designed to increase creative mental ability. I

include it as a resource because it is from the minds of creative teachers that creative lessons emerge.

Rief, Sandra F. *How to Reach and Teach ADD/ADHD Children* . New York: Center for Applied Research in Education, 1993. This very comprehensive work provides practical techniques, strategies, and interventions for helping children with attention problems and hyperactivity. I include it as a supporting resource for the multi-modal approach utilized in this unit.

Tiedt, Iris M. and Pamela L. *Multicultural Teaching* . Boston: Allyn and Bacon, 1990. I have included this exhaustive resource because it addresses issues of diversity which often become evident in a discussion of moral behavior. This book contains several hundred activities for all grade levels across the curriculum. After reading this book, the teacher will surely examine both the overt and covert curriculum in her classroom.

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