EFFECTIVE TEACHING OF INFERENCE SKILLS FOR READING: LITERATURE REVIEW

NATIONAL FOUNDATION FOR EDUCATIONAL RESEARCH, 2008

INTRODUCTION

The ability to make inferences is, in simple terms, the ability to use two or more pieces of information from a text in order to arrive at a third piece of information that is implicit. Inference can be as simple as associating the pronoun 'he' with a previously mentioned male person. Or, it can be as complex as understanding a subtle implicit message, conveyed through the choice of particular vocabulary by the writer and drawing on the reader's own background knowledge. Inferencing skills are important for reading comprehension, and also more widely in the area of literary criticism and other approaches to studying texts.

A key understanding is that the ability to draw inferences predetermines reading skills: that is, poor inferencing causes poor comprehension and not vice versa.

Different skills within inference?

Different researchers have identified many different kinds of inference; however, there is no general consensus in the literature about the number of types of inference, or how they should be named. The most frequently cited inference types have been defined and exemplified below. It should be noted that there is some overlap between these categories.

Coherence inferences (also known as text-connecting or intersentence inferences). These maintain textual integrity. For example, in the sentence Peter begged his mother to let him go to the party, the reader would have to realise that the pronouns 'his' and 'him' refer to Peter to fully understand the meaning.

Elaborative inferences (also known as gap-filling inferences). These enrich the mental representation of the text, e.g: Katy dropped the vase. She ran for the dustpan and brush to sweep up the pieces. The reader would have to draw upon life experience and general knowledge to realise that the vase broke to supply the connection between these sentences.

Local inferences. These create a coherent representation at the local level of sentences and paragraphs. This class of inferences includes:

1. coherence inferences (described above).

2. "case structure role assignments", e.g. Dan stood his bike against the tree. The reader needs to realise that the tree is assigned to a location role.

3. some "antecedent causal" inferences, e.g. He rushed off, leaving his bike unchained. The reader would need to infer that Dan was in a hurry and left his bicycle vulnerable to theft.

Global inferences. These create a coherent representation covering the whole text. The reader needs to infer overarching ideas about the theme, main point or moral of a text by drawing on local pieces of information.

On-line inferences: inferences drawn automatically during reading.

Off-line inferences: inferences drawn strategically after reading.

How can pupils best be taught to use inference skills?

The research evidence reviewed suggested that, in order to be good at inferencing, pupils need to:

- be an active reader who wants to make sense of the text
- monitor comprehension and repair misunderstandings
- have a rich vocabulary
- have a competent working memory

Inferencing skills are also facilitated by:

- having a wide background knowledge
- sharing the same cultural background as that assumed by the text

THIS EXTRACT REPORTS THE RESEARCH FOR VOCABULARY, DECODING & PRIOR KNOWLEDGE

VOCABULARY

Many researchers emphasize the importance of vocabulary development as a foundation to the higher level skills such as inference. Cain (1996) claimed that attention had to be focussed at word level as poorer readers have difficulty in the use and interpretation of local cohesive devices, such as pronouns and connectives, which are crucial in the production of coherence inferences. These deficits were found to be missing not only in reading but also in listening activities leading to the conclusion that poor inferencing skill was a root source of difficulty in comprehension and not vice versa.

Using eye movement measurements as a gauge to the speed with which inferences are generated, recent work with undergraduate students also suggests a dependency of inference on vocabulary. Having conducted a prior assessment of the vocabulary and working memory span of his subjects, Calvo (2004) concluded that during reading available vocabulary knowledge makes a direct and specific contribution to inferences. The availability of vocabulary knowledge is involved in later search and selection of words that are contextually relevant to represent an emerging (although not yet completed) inference.

An indication of what a teacher can do to address word level instruction is given in the McGee and Johnson's study. In brief, the researchers trained pupils to explain what individual words and phrases contribute to sentences. Pupils saw demonstrations of how words contribute to meaning. They were then trained to look for the clue words in sentences for themselves. They were encouraged to act as 'word detectives' in choosing key words and evaluating what information these words convey. The researchers admitted that when pupils were asked to do this for themselves, they did initially choose 'useless' words (e.g. 'was') but they soon discovered what types of words carry most meaning.

Harrison (2004) also underlined the importance of vocabulary development. He referred to the 'Matthew Effect' according to which the 'rich get richer and the poor get poorer:' Good readers augment their vocabulary through prolific reading, while the vocabulary of the reluctant reader falls behind. Harrison maintained that the inevitability of the 'Matthew Effect' can be mitigated by the teacher reading aloud and / or the playing of story tapes. Almost all enjoy listening and the less able profit from orally introduced vocabulary building.

DECODING PRACTICE

Pressley, in his influential publication of 2000, stressed that improvement in word-level competencies leads to an increase in comprehension. His interpretation of word-level competencies included not only vocabulary knowledge, but also the ability to decode print with ease and the development of sight words. The more skilled the decoding, the less conscious effort required for it, and the more conscious capacity left over for comprehension of the word, including in relation to contextual. This corroborated one of the most surprising and unexpected findings of the 1988 Yuill and Oakhill inference study with seven-year-olds. In that enquiry, the skilled comprehenders who were given decoding practice improved more than those under the other training conditions. They experienced an increase of ten months in reading age, compared to five months when exposed to inference or comprehension training. This can be interpreted as an indication that teachers must exercise judgement in targeting different types of reading activity at different abilities and that there is a case for 'going back to basics' for short periods of 'speed reading' practice even for the ablest of readers.

To re-cap, therefore, in this review evidence has been found to support the following types of word-level work to bolster improvement in inference:

- Decoding print
- Vocabulary building
- Attention to meaning: both denotation and connotation and
- How individual items of vocabulary contribute to the meaning of a sentence

While there is support for word-level work underpinning progress in inference, pupils themselves have to be encouraged to divert their focus from word or phrase-level understanding to whole text. The failure of poorer readers to draw inferences has been attributed by many to their reluctance to consider the 'big picture' and to be focussed very much at the word and phrase level of interpretation. One reason for the less skilled comprehenders' initial failure [to draw inferences] may be that they approach the task of reading with a different set of aims to the skilled comprehenders, focusing more on word reading accuracy rather than comprehension monitoring.

ACTIVATION OF PRIOR KNOWLEDGE

In a study with just under sixty year 2 children, Cain and Oakhill (1998) eliminated memory or general knowledge deficits as a source of inferencing failure. They arrived at the conclusion that knowing when and how to relate ... general knowledge to the text, in order to fill in missing details, was more likely a source of problems. produced little to advise teachers on how to activate prior knowledge to benefit inferencing skills.

McGee and Johnson (2003) recognised the role of prior knowledge in inferencing. They quoted Hansen and Pearson (1983) who developed a method of teaching inferential skills that was intended to encourage children to relate textual information to their own previous experiences. Before starting to read a text, the children were encouraged to use their own experiences in relation to the topic as a source for generating hypotheses about the text. The text was followed by ten inference questions which were answered and discussed to foster the generation of global inferences (superordinate goals, causal consequences, main theme). On comprehension tests, the programme improved the performance of poorer readers up to the level of their abler peers.

The failure to find much advice on the activation of background knowledge may be because this aspect of inference is seen as largely an automatic process, executed unwittingly. Pressley (2000) contrasted the automatic relating of text content to prior knowledge with those processes that are conscious and controllable. He then continued to say that whether a reader uses relevant schematic knowledge depends somewhat on unconscious and automatic processes of association

but also on many conscious reading processes, ones that can occur before, during and after reading. Of the nine processes that Pressley identified as being under the conscious control of the reader, there are three that apply to prior knowledge:

- Making associations to ideas presented in a text based on reader prior knowledge
- Evaluating and revising hypotheses that arose during previewing or occurred in reaction to earlier parts of the text, revising hypotheses if that is in order
- Revising prior knowledge that is inconsistent with ideas in the text, if the reader is convinced by the arguments in the text (alternatively, rejecting the ideas, when they clash with prior knowledge).

Pressley, in his résumé of instructional approaches, favoured the transactional strategies model of teaching. In this approach, the teacher would demonstrate the practice of self-administered why-questions and the three processes outlined above in relation to a real text and show how she draws on information extrinsic to the text in order arrive at its implicit meanings.

Harrison (2004) looked back more than 20 years to find a model of prior knowledge activation to advocate. According to him, the work of Langer (1981) and her three-phase model for eliciting and classifying prior knowledge (the 'Pre-Reading Plan') had impressive results. The plan worked because it makes learning more meaningful, activates schemata onto which new knowledge will be mapped ... increases provisional understanding, processing and recall. ... a class discussion of both the associations and the hierarchies shared by the members of the group are brought out into the open, then those with fewer associations and less well organised strategies will benefit the most, but everyone has the opportunity to extend and update their own schemata before the new knowledge, vocabulary and concepts are encountered.

Langer's Pre-reading Plan consists of the following three phases:

- pupils generate initial associations
- they discuss and clarify their collective knowledge
- they reformulate knowledge, clarifying what they now know as a result of discussion.

More information about prior knowledge activation may be found in sources that are not narrowly focused on inference skills but more widely on teaching and learning. Lewis and Wray, who wrote for teachers wishing to develop literacy via other curricular subjects, described generic strategies for activation of prior knowledge. This stems from their work on the Nuffield Extending Literacy Project, in which they worked with secondary teachers in a number of cities, boroughs and counties. They amassed dozens of teaching ideas and a fair sense of what works and does not work. In brief, they indicated that existing knowledge should be elicited from pupils through:

- Discussions
- Brainstorming / concept mapping
- Using visual sources
- Using artefacts
- Using grids for organising the outcomes

Lewis and Wray claim that one of the advantages of work such as this is that pupils share and value different experiences and knowledge from a range of backgrounds and cultures and key ideas and vocabulary can be introduced within a supportive context. If this is the case, then the strategies described in the points above would also help to alleviate the difficulties experienced by second language speakers.

Advice for teachers on the benefits of activating background knowledge is ambiguous. The research conducted by Barnes et al. (1996) and Cain et al. (2001) suggests that knowledge acquired just prior to reading is not as useful for inferencing as that which is well embedded in the reader's long-term schemata. Cain et al. arrived at the conclusion that ...*even when they had the requisite knowledge base from which to generate an inference, the less skilled comprehenders did*

*not make these inferences as readily as their skilled peers did. Kn*owledge availability is therefore not a sufficient condition for inferencing.

Barnes et al. (1996) hypothesized that knowledge was more useful to the reader if it were taught using a more protracted...type of acquisition phase. They claimed that knowledge does not consist of facts alone but is made up of facts and the set of connections between facts: a whole network of associations. The number of times and in what contexts a reader has already encountered this network will influence inference generation. They suggested that the natural growth of the knowledge base as we grow up, repeatedly being tapped into, in different contexts, may be responsible for the increase in elaborative inferences with age. It may be that the growth of the knowledge base itself, with ensuing changes in knowledge accessibility, is responsible for age-related increases in elaborative inferencing. Pressley (2000) also stressed the importance of background knowledge saying there seems to be no substitute for having a rich resource of knowledge of one's own.

There is no argument that prior knowledge is an important prerequisite to inferences. However, the value of trying to activate prior knowledge is unclear. The work of Cain et al. and Barnes et al. suggests that its efficacy in promoting inference production is limited. It would seem to benefit mostly those children who know quite a lot and who can readily integrate new information into the networks of the schemata they have already constructed.

Harrison (2004), Lewis and Wray (2000), by contrast, have provided successful models for knowledge activation and are advocates in their use. It is claimed that its main advantage is to those whose knowledge of the world is less well developed. In their conclusions, however, the benefits are shown on learning, recall and comprehension in general rather than inferencing specifically. It is hard to see any detriment to the sharing of background knowledge, especially before embarking on an expository text. Even if not of immediate benefit to the interpretation of the text in hand, it may be in the future.

On the following pages are examples of lessons that highlight visualising techniques from the book by Stephanie Harvey & Anne Goudvis:

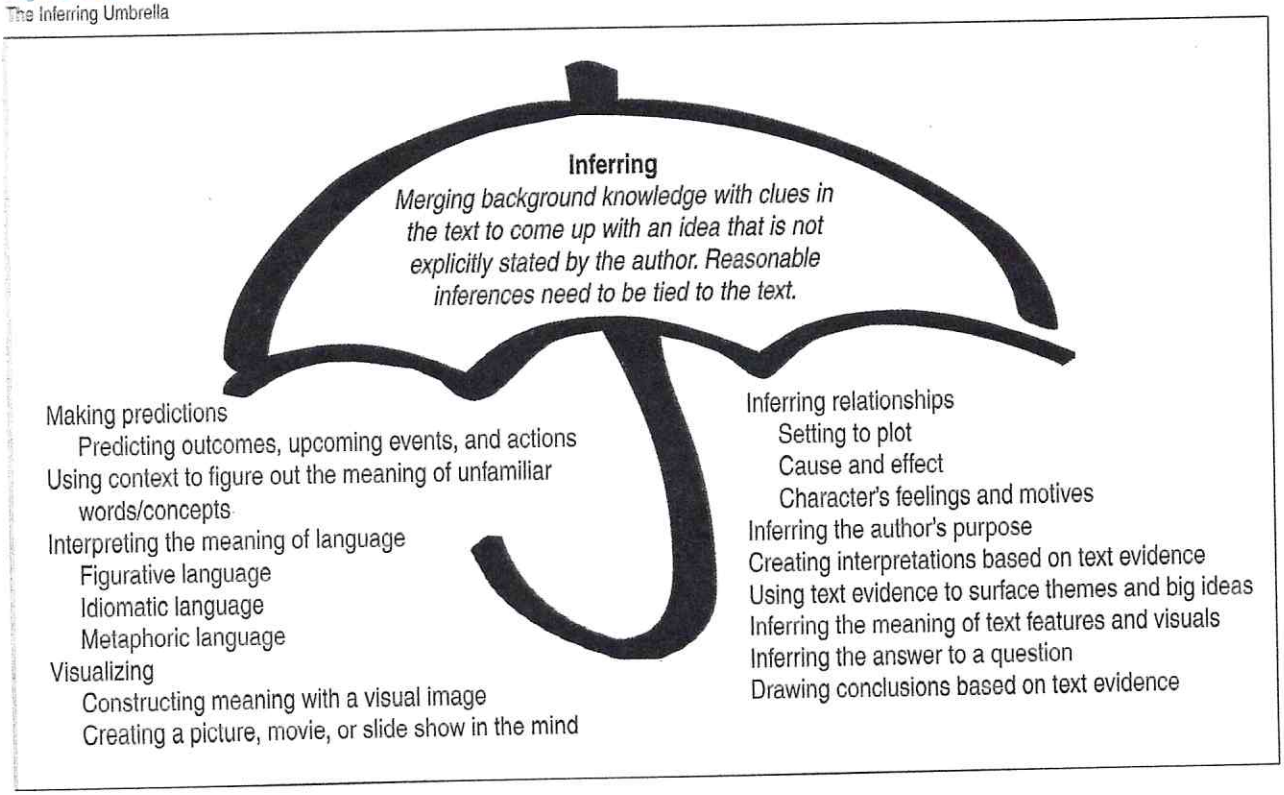
"STRATEGIES THAT WORK:
Teaching Comprehension for Understanding, Engagement, and Building Knowledge"

We discuss visualizing and inferring in one chapter because they are closely related. Visualizing strengthens our inferential thinking. When we visualize, we are in fact inferring, but with mental images rather than words and thoughts. Visualizing and inferring don't occur in isolation. Strategies interweave. Inferring involves merging background knowledge with text clues to come up with an idea that is not explicitly stated in the text. Inferring is the proverbial reading between the lines.

A variety of mental processes occur under the umbrella of inferential thinking. When we teach kids to infer, we might teach them to draw conclusions or make predictions. Predicting is related to inferring, of course, but we predict outcomes, events, or actions that are confirmed or contradicted by the end of the story. Prediction is one aspect of inferential thinking. To help our students understand the difference, we encourage them to consider the outcome of an event or action each time they make a prediction and notice whether there has been a resolution.

Inferring also involves using the context to figure out the meaning of unfamiliar words or noticing a character's actions to surface a theme. Our colleague Judy Wallis created a visual that describes the multifaceted nature of inferential thinking. She chose an umbrella to represent the many aspects of inferring. We have adapted it here to show the different ways readers use inferential thinking to enhance understanding. (See Figure 10.2.)

Figure 10.2
The Inferring Umbrella



Inferential Thinking: Reading Between the Lines

Inferring is the bedrock of comprehension, not only in reading. We infer in many realms. Our life clicks along more smoothly if we can read the world as well as text. If our boss looks grumpy in the morning, it might not be the best day to ask for a raise. If a kid's lips are quivering, it might be a sign to give him or her a hug. To help students understand the nature of inferential thinking, we might feign a terrified look and ask them what they can infer from our facial expression. If they mention scared or frightened, they've made an accurate inference. Inferring is about reading faces, reading body language, reading expressions, and reading tone as well as reading text.

Strategy Lessons: Inferring

Inferring Feelings with Kindergartners

Purpose: **Helping kids to better understand their own and others' feelings**
Resources: **A feelings chart and a card with the word *sad* written on it**
Response: **Clues to how students feel when their feelings match an emotion written on a card**
Audience: **Primary**

Kindergarten teacher Sue Kempton organizes a game with a twofold purpose. She wants her students to have an opportunity to explore feelings, and she hopes to help them begin to get a handle on the notion of inferential thinking. Every few days, Sue introduces a new emotion and writes it on a card. At this point, the kids have *mad, sad, happy, disappointed,* and *frustrated* in their repertoire of cards. Sue reviews the nature of these feelings and then chooses one of the cards. She pins it on the back of a class volunteer; on this day Andrew wears the card. Andrew stands in the middle of the circle and turns around several times slowly so that everyone has an opportunity to see his card. He doesn't know which card he wears on his back.

"Who has a clue for Andrew?" Sue begins. Kids raise their hands and give clues that might help Andrew figure out what word he is wearing on his back. Each student begins with "I felt that way when . . ." and completes the clue:

. . . my sister hit me with a golf club
. . . my dog died
. . . my mom said we couldn't go to the Children's Museum
. . . my dad didn't let me go to the movies
. . . my grandpa Nick died

After five or six kids have shared their clues, Sue asks, "Okay, Andrew, can you infer what the feeling is?"

"Sad," Andrew answers triumphantly.

"Good thinking, Andrew. How did you know?" Sue asks.

"Because people get sad when animals and grandparents die," Andrew answers.

And he was right, of course. The kids love this game. As they play more often, they clarify their feelings and predict which situations might lead to one feeling or another.

Kindergartners Get the Message

Purpose: **Understanding the text and inferring the big ideas in fiction**
Resources: ***Oliver* by Birgitta Sif**
Response: **Short written and illustrated responses on sticky notes**
Audience: **Primary**

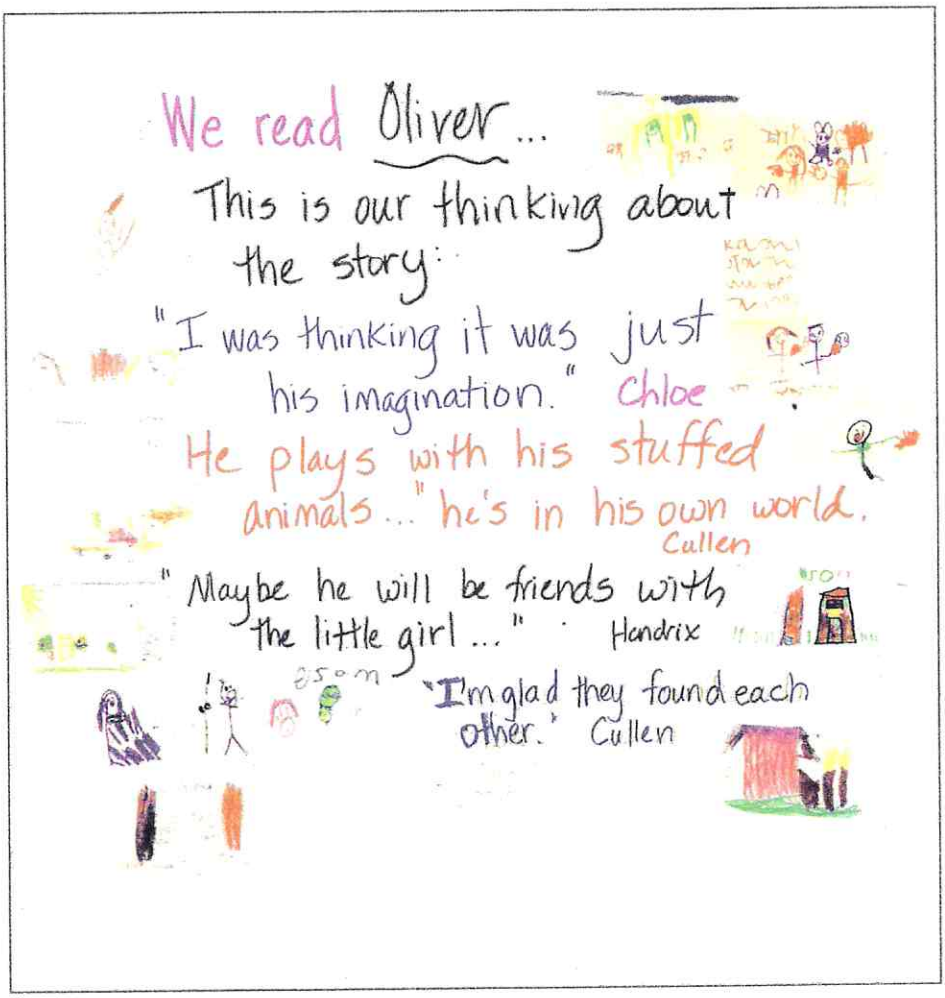
Kindergartners in Kristin Elder-Rubino's class love to hear stories—and they eagerly gather on the rug each day to listen to a picture book. Birgitta Sif's *Oliver*, a story about a little boy with a huge imagination who lives in his own world, has humorous illustrations and important messages that kids can understand and connect to. When he finds a friend at the end of the story, kids are relieved and happy to see that someone so different from everyone else finds a best friend. As they read and stop to talk about the book, they also learn that stories have many ideas that are worth discussing with your friends.

Early in the year, Kristin launches an interactive read-aloud by giving kids plenty of practice with routines such as turning and talking about the story. Rather than emphasize the talker during this routine, Kristin reminds kids that the most important job is probably to listen to what one's partner is saying, encouraging kids to take turns talking and listening to each other.

Kristin begins by thinking out loud as she reads the story, writing her thoughts on the chart. She comments and writes that Oliver does not seem to notice what's going on around him and creates his own world using his imagination. Kids chime in that Oliver is happy playing by himself with his stuffed animals, and many make a connection that they love to do that, too. When, at the end of the story, Oliver accidentally meets a little girl just like him, the kids get it. Gina comments, "Maybe they'll be friends so he doesn't have to keep playing with his stuffed animals all alone." After they talk about the ending, kids rush back to sticky notes at their tables, eager to draw and write their thinking.

While kids are encouraged to write their thoughts in invented spelling, Kristin occasionally jots a longer and more complex idea to capture a child's thinking. When she conferred with Michael, he asked her to write: "The book *Oliver* reminds me of *Corduroy*, when Lisa got to bring him home and hugged him and became friends." He and Kristin discussed the idea that both main characters in these stories found friends in unusual places. Cullen chimed in on the conversation, showing Kristin and Michael his drawing of two houses, one Oliver's and one Olivia's. He asked Kristin to write "I'm glad they found each other." At the end of the lesson, the kids eagerly put their sticky notes on a big chart (Figure 10.8), coming up to share their thoughts and the big ideas in the story: that having an imagination is great, but it may be even better to have friends.

Figure 10.8
Students' Responses to *Oliver*



Inferring and Visualizing with Poetry

Purpose: **Constructing the meaning of a poem through inferential thinking**
Resource: **The poem "Celebrations of Earth" by Stuart Franklin (2000)**
Response: **Annotations on a poem**
Audience: **Intermediate and middle**

Poetry is both a highly visual and inferential genre. Poems are often loaded with figurative language, and poets try to paint pictures with their words. So inferring and visualizing are two strategies that are very helpful to us when we are reading and understanding poetry.

Steph models this lesson with a poem from *National Geographic Magazine*:

Celebrations of Earth
A small planet in a modest solar system
a tumbling pebble in the cosmic stream
and yet . . .
This home is built of many mansions,
carved by wind and the fall of water,
lush with living things beyond number,
perfumed by salt spray and blossoms.
Here cool in a cloak of mist
or there steaming under a brazen sun
Earth's variety excites the senses and exalts the soul.

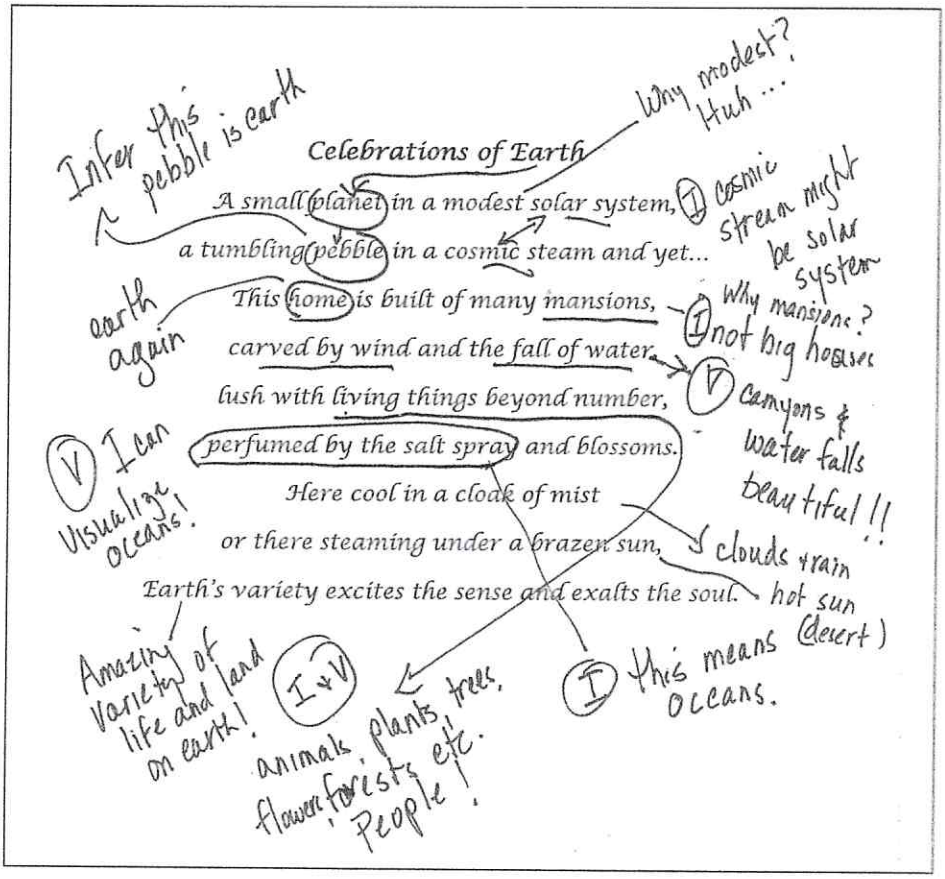
She begins by explaining that poets often search for words that represent ideas in ways that prose does not, and that poets really try to paint pictures with their words so that the reader can

visualize what the poem is saying. Poems are often shorter than most prose, and poets try to capture meaning with minimal text, which requires us to think inferentially when constructing meaning in poetry.

As she shares this poem, she thinks aloud and annotates it so kids can see how she goes about making meaning. She infers that the first line, "A small planet in a modest solar system," probably refers to Earth, especially since the title is "Celebrations of Earth." She has the kids turn and talk about what they think that line in the poem means and what they are inferring as she continues thinking aloud and annotating.

As she moves to the next line, "a tumbling pebble in the cosmic stream," she shares how she infers that the pebble is the poet's way of seeing Earth as it orbits the sun. She continues to share how she visualizes Earth as a place with canyons carved by the wind, and oceans giving off salt spray. She codes her inferences with an *I* and her visualizations with a *V*. Throughout her think-aloud, she continues to have kids discuss the poem and talk about what they are inferring and visualizing. Her annotated version of the poem is shown in Figure 10.10.

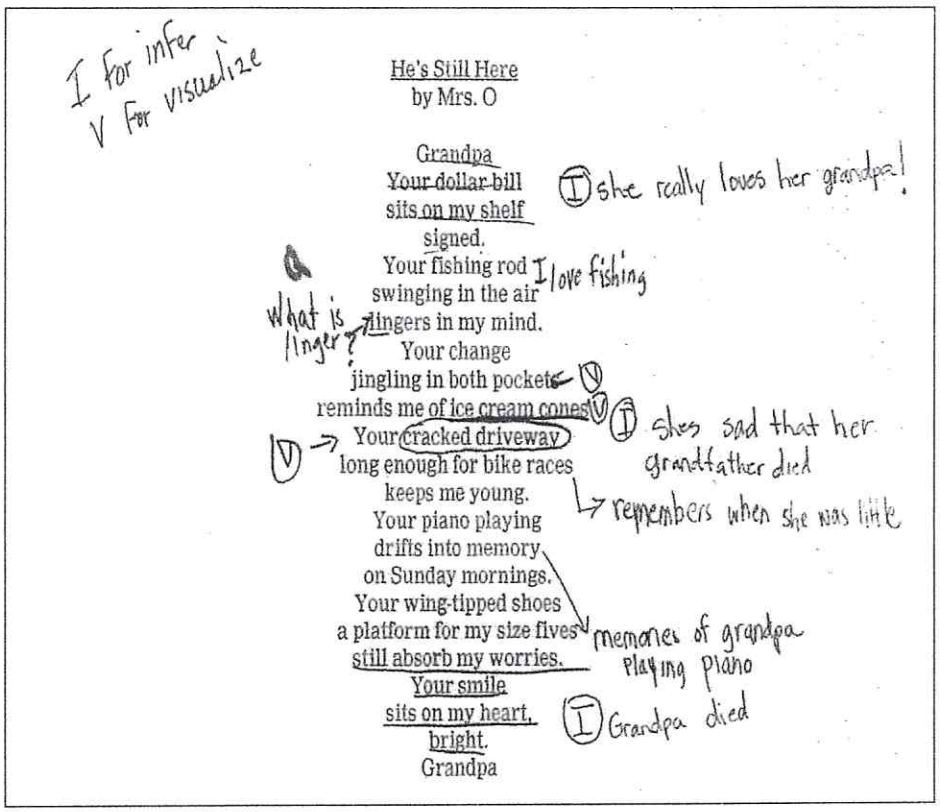
Figure 10.10
Steph's Annotations of "Celebrations of Earth"



After modeling, she hands out several poems to these fourth graders, including "He's Still Here," written by a wonderful teacher (and poet) Holly Occhipinti. Gabriel and Rachel choose Holly's poem and work together to reason through it. They infer and visualize to understand it, as well as make connections as they read. They annotate the poem like Steph did as she modeled (see Figure 10.11).

We need to share much more poetry with our kids. They love the sound, the flow, and the puzzle of it. And inferring and visualizing offer a key to unlocking the meaning.

Figure 10.11
Gabriel and Rachel's Annotated Poem



Inferring from Images and Text in Nonfiction

Purpose: **Using images, features, and simple text to infer information**
Resources: **Simple nonfiction books with vivid photographs, various features, and text**
Responses: **Drawings and explanations inferred from the text and images**
Audience: **Primary and intermediate**

Teachers often ask how kids use inferential thinking to gain information in nonfiction. In fact, inferential thinking is one of the primary ways that children access and learn information. Show kids a photograph of a great white shark and have them turn and talk about what they can learn simply from viewing the photo. "Must be a carnivore," a child may quip after noticing the sharp teeth. Ask them what makes them think that and most will shout out, "The teeth!" Show them a diagram of a volcano erupting and someone will almost certainly infer that anybody living close is in trouble. This is inferring at its simplest and most useful.

In fact, we do it so frequently that we may not even notice that we are inferring. We need to teach kids explicitly to read and view closely so they can use their inferential skills to more fully understand the information derived from illustrations, photos, maps, diagrams, close-ups, and, of course, text. We often ask kids to illustrate and/or explain any information they inferred from viewing features and reading text. And we don't just do this lesson one time only. Viewing and analyzing features is a practice that we engage in every time we read for information. So inferring is one of the most powerful avenues we have for learning information.

Recognizing Plot and Inferring Themes

Purpose: **Differentiating between plot and theme, and inferring the big ideas or themes**
Resource: ***Teammates*, by Peter Golenbock**
Responses: **Class discussion; chart of themes; theme boards**
Audience: **Intermediate and middle**

Literature, both fiction and nonfiction, is rife with themes. Books and articles rarely promote just one main idea but rather several for readers to ponder and infer. When we talk to students about themes, we help them discern the difference between theme and plot. We explain that the plot is simply what happens in the narrative. The themes represent the bigger ideas of the story. The plot carries those ideas along. To demonstrate plot, we choose a simple narrative that everyone is likely to be familiar with. We might recount the plot of *Goldilocks and the Three Bears* by summarizing the events of the story as follows. A girl named Goldilocks was wandering through the forest and entered an unfamiliar, empty house. She tasted porridge that didn't belong to her, broke a chair, and slept in a bed that wasn't hers. She was caught when the bears returned, and she ran out of the house scared to death.

We explain to our students that themes are the underlying ideas, morals, and lessons that give the story its texture, depth, and meaning. The themes are rarely explicitly stated in the story. We infer themes. Themes often make us feel angry, sad, guilty, joyful, frightened. We tell kids that we are likely to feel themes in our gut. To help students more clearly understand the difference, we might ask, "What are the bigger ideas in *Goldilocks and the Three Bears*?" Kids tend to identify taking things that don't belong to you, selfishness, thoughtlessness, and so on. They have experienced these notions and they understand them.

A nonfiction picture book we have used to demonstrate inferring themes is Peter Golenbock's *Teammates*. It is the moving story of Jackie Robinson's courageous breakthrough into the all-white major leagues. It goes beyond the history and describes the personal relationship between Jackie and his white teammate Pee Wee Reese. Pee Wee was the only player on the Brooklyn Dodgers team who supported Jackie's quest.

To continue their study of inferring, Steph demonstrated a think-aloud with *Teammates* to the fifth graders in Jennifer Jones's class the day after taking them through the Goldilocks exercise. After describing the difficult, segregated life of players in the Negro leagues, Golenbock writes that life was much better for players in the major leagues. They were paid well, and many were famous all over the world. Steph coded her sticky note *I* for Inference while noting that this kind of racial inequality might breed anger. She suggested that both racial inequality and anger might be themes in the story even though the writer hadn't written those very words. So Steph created an anchor chart headed Evidence from the Text/Themes. Under Evidence from the Text, she wrote *Words, Actions, Pictures* and explained that we can infer themes from the words in the text, the actions of characters, and the pictures and illustrations. All of these provide evidence that supports the bigger ideas and themes we infer in a narrative.

When Curtis heard that Branch Rickey, the manager of the Brooklyn Dodgers, was looking for a man who "would have to possess the self-control not to fight back when opposing players tried to intimidate or hurt him," he suggested that self-control might be a theme. Steph concurred and added it to the chart and pointed out that Curtis was using evidence from the text. When Steph finished reading the story, she facilitated a discussion about the bigger ideas in the narrative based on text evidence.

"Jackie was alone without a single friend. No one would sit near him or talk to him," Chantal mentioned.

"Good noticing, Chantal. Why didn't he get mad about that?" Steph asked.

"Because he had a lot of self-control. The manager wanted a man who wouldn't fight back, no matter how mad he got, and Jackie never did."

"Chantal, that is exactly how we use evidence to infer a theme. Let's put your thinking up on the chart," Steph suggested. She wrote *self-control* in the Themes column and then *Jackie never fought back* in the Evidence column.

"So, what might be another theme?" Steph asked.

"I know how he felt. When I moved here, I didn't have one single friend. I felt really lonely." Rogers said. So Steph added *loneliness* to the chart and cited Rogers's evidence.

"But Pee Wee was his friend," Jaquon added.

"So, is friendship a theme?" Steph asked.

"Sort of, but most of the team would not be his friend because he was black," Jaquon continued.

"That's racist," Curtis added.

"It sure is racist, Curtis. Are racism and friendship both themes in *Teammates*?" Steph asked.

The kids nodded, and Steph added both of those themes to the chart along with the evidence for them. And so the discussion went for nearly forty-five minutes, culminating in a long list of themes and evidence for them. Some of the themes that surfaced included racial inequality, segregation, anger, taking a stand, and bravery.

Steph reiterated that all of these themes represented the bigger ideas in the story and that most of them evoked strong feelings. We have noticed that kids are more likely to remember important themes when they derive the ideas themselves and feel them deeply. It is our role to help draw students out through engaging discussions about the bigger ideas in the story. Often, the kids used their prior knowledge to infer themes and better understand the narrative, as Rogers did when he mentioned being the new kid on the block. As students talk about the bigger ideas, it is our responsibility to help them label the ideas, articulate the themes, and cite text evidence. Inferring after all is about taking what we know, our background knowledge, and combining it with clues or evidence in the text to draw a conclusion or, in this case, surface a theme.

On the following day, Steph handed out a think sheet that matched the chart, with the headings Evidence from the Text/Themes. The kids went back and reread and reconsidered *Teammates*. They cited evidence from the text and recorded themes they discovered during the first read as well as themes that surfaced on their second reading and reviewing of the text. (See some of their think sheets in the assessment section of this chapter.)

Teaching with the End in Mind: Assessing What We've Taught

Inferring and Visualizing

Based on the lessons in this chapter, we look for evidence that

1. *Students visualize and create mental images to make sense of what they read.* As students listen to and read text, we look for evidence that they draw and write about their mental images or mind pictures to support understanding.
2. *Students infer the meaning of unfamiliar words.* We look for evidence that students are using the context to figure out the meaning of words and concepts that elude them.
3. *Students use text evidence to infer themes and big ideas.* We look for evidence that students are merging their background knowledge with clues in the text to surface themes and big ideas.
4. *Students infer and draw conclusions from many different texts and genres.* They also infer from a variety of text features, including infographics, diagrams, illustrations, and so on. We look for evidence that students enhance their understanding and build knowledge in all genres.

Suggestions for Differentiation

Visualizing and inferring lend themselves to differentiation. We cannot overestimate the importance of drawing as a means to understanding. When kids draw to clarify understanding, they are constructing meaning. Sensory imaging is about more than just visualizing. Kids taste, touch, feel, and smell their way through books as well as through experiences. So we model using all of our senses to understand what we read, hear, and view. Many times kids can express through drawing what they may have difficulty articulating in oral or written words.

We teach inferring in many contexts outside of text. Playing charades is a wonderful way for kids to get a concrete idea of what it means to infer. Role playing and drama also encourage kids to act out their understanding of what they read. Sharing unfamiliar items and objects like kitchen utensils, old-fashioned tools, and so forth require kids to use inferential thinking to make sense of them and infer their purposes. All of these activities give kids a more concrete idea of what it is to infer.