Text Set – 6th Grade Meteorology

Introduction

This text set will be used for a 6th grade science unit on meteorology. It includes eight books. The majority of these books range from reading levels three years below to two years above grade level, with one selection that is five years above. The genres included in this text set are fiction, nonfiction and biography. The books were selected based on their ability to capture students’ interests and engage them in a unit that many find dull and therefore more difficult. Two of the books were selected specifically because they each are part of a larger series, thereby creating a gateway to other similar books for students who become interested and have a growing desire to read.

There is a deliberate balance between fantasy and reality in the text set, allowing for a more creative approach to science. This is especially important, as it allows students who do not normally enjoy or do well in science classes to succeed in this setting. Diversity of all types is a given in today’s classroom, and through this text set students will discover stories from as nearby as Washington D.C. and Minnesota in our own country, all the way to England and Nepal. Through these carefully chosen books, 6th grade students will learn about science in a way they never imagined. It is my hope that by using these books as a supplement to a traditional textbook, I will engage my students more successfully, and foster a greater understanding and deeper appreciation of science and reading.
The texts chosen are aimed to help students gain proficiency in a number of standards. Students in the sixth grade do not take an SOL for their science; instead, they accumulate knowledge based upon Education Standards set forth by the Virginia Department of Education.

6th grade standard (6.6):

The student will investigate and understand the properties of air and the structure and dynamics of the Earth’s atmosphere. Key concepts include:

- air as a mixture of gaseous elements and compounds
- air pressure, temperature and humidity
- how the atmosphere changes with altitude
- natural and human-caused changes to the atmosphere
- the relationship of atmospheric measures and weather conditions
- basic information from weather maps including fronts, systems, and basic measurements
- the importance of protecting and maintaining air quality
Item One: *Wild About Weather* by Ed Brotak

Summary

This nonfiction book is written by a teacher and meteorologist specifically for students who aren’t really thrilled about weather. Brotak’s conversational writing style and ability to mix content and activities provide a great alternative for students who find traditional texts challenging. Through a variety of chapters and experiments, this text hits nearly all the 6th grade science standards.

Rationale

This text will engage reluctant readers because it takes a different approach to science, and will hopefully help students understand that not all of weather and meteorology is boring. The book includes a number of experiments that can be performed in class or at home, fun quizzes and trivia, and great illustrations to accompany the text. The text covers a wide variety of content, allowing for a greater segment of students to be reached. This variety may also result in students discovering new interests and encourage outside exploration and reading.

The text might activate schema for all students in a similar way. This book is written from the first- and third-perspectives, which allows for easy fact dissemination as well as providing a personal connection for the reader. Brotak realizes that not all kids are crazy about the science behind weather, and addresses this by making a personal connection to weather and students’ daily lives. Through his creative technique, Brotak manages to create a more personable science book which students can actually enjoy.

Usage of Text

This text can be used in two different ways. It could be used in the Assistance stage of PAR, where it would be best suited to replace an official textbook and allow students another avenue for learning. For the parts of the curriculum where students need extra assistance, this
text could be used to augment an official text. In this case, it may be used as a supplement in the Reflection stage if students have satisfactory comprehension of a topic, but require more evaluation and need help with retention. Because of the nature of the book, it could be used in and out of the classroom setting. New vocabulary words should be introduced before any reading is done individually, and teachers should be aware that this text should be used instructionally. By preparing the students in the classroom, teachers provide students with the necessary support to take the book home. Reviewing read material the next day allows the teacher to gauge if students grasped the concepts in the reading. The reading passages provide great background knowledge and the experiments could be done in class to stimulate lively discussion and promote comprehension, since students will be seeing material repeatedly.

**Readability**

Using the Flesch-Kincaid readability formula, this text is at a 7th grade reading level, but this is probably inflated because of the repetition of common multi-syllabic words with good lexical meaning (e.g. hurricane, meteorologist, thermometer). The majority of the words in this text should be familiar to 6th graders, and those that aren’t can be introduced as vocabulary. Using Bader, this book is excellent for 6th graders. Not only does it address topics completely appropriate (it touches nearly every science standard set by the state), it provides great organizational factors such as headings and sidebars to help struggling readers. The author’s style is friendly and appealing, and this book is a great tool to use as an alternative to a traditional text.

**Reference**

Item Two: *Where the Four Winds Blow* by Dan Yaccarino

**Summary**

This book is about a young boy, Roger, who dislikes his family very much. He has an older sister with whom he constantly fights and ever since Roger’s dad got a promotion, things have changed. Dad works constantly, Mom orders in dinner all the time, and the only things his parents do together are “go to cocktail parties or play golf or tennis at the club.” But now it’s summer, and Roger takes refuge in his room, eagerly conducting experiments and hiding from his awful family. The book begins with a huge thunderstorm that frightens and fascinates Roger at the same time. In the midst of the storm, Roger gets so angry about his parents and the wind that he yells out his window, “I wish you’d carry Mom and Dad away, too!” Roger wakes the next morning to find his parents gone, and so begins the story of a brother and a sister, their encounters with weather, and how they must work together to find their parents and their kidnappers.

This text relates to the 6th grade standards of air pressure, temperature and humidity (in the characters they meet on their journey), and the relationship between atmospheric measures and weather conditions (Roger’s storm journal and how windy it got during the storm).

**Rationale**

This text is engaging for the most reluctant learners because it is very simple. Thunderstorms aren’t a particularly difficult concept for students to grasp, and one that nearly all students can relate to. It can also engage struggling readers thanks to the large print, illustrations and familiar sentence structure. Roger expresses a desire to be a meteorologist when he grows up, and this could allow for discussion regarding my students’ career aspirations. Planting a seed and having faith in these students might open them up to further discussion and willingness to read.
This text might activate schema for all students through a number of ways. Similarly with reluctant readers, thunderstorms create fear and curiosity in all students, so the content itself is a way for students to connect. Also, the familiar struggle between siblings or between parents and their children is something everyone can identify with. My students will be able to “see themselves” through either Roger, or his sister, Sally, as they hunt for their parents. A sense of loss or longing for a loved one can also be addressed through this text, and not just for a parent. It could be a friend or a role model in the students’ lives that they are searching for. By using feelings and emotions that are familiar to my students, this text will be able to provide a personal bridge to learning.

**Usage of Text**

This text will be used in the Preparation stage of PAR, in conjunction with the textbook. Since it is slightly below the grade six reading level, I would probably use it both in and out of the classroom, but I realize I would need to be very conscious of the reading abilities of my students. If all my students were at an instructional or independent level, I would incorporate more of the reading as an individual practice, with guided discussions and worksheets in the classroom as an introduction to the unit. However, the ease of reading overall leads me to believe that this book might be appropriate even for struggling readers, perhaps with some instructional support such as echo reading.

**Readability**

Based on the Fry readability formula, this text is at the 5th grade reading level. However, I feel like this book is closer to a 3rd or 4th grade level. It is a relatively short book and does not have difficult vocabulary. There is a large of dialogue between the characters, resulting in shorter sentences, and this may have raised the Fry result slightly. The content is appropriate and logically progresses for 6th grade students, and of the ease of the sentences and vocabulary, as
well as a large amount of pictures in the text makes this book a good fit for struggling readers.

My biggest concern is that the text may prove to be too simplistic for my more advanced readers, so I might choose a different book with which to challenge them.

**Reference**

**Item Three: The Winter King by Dean Morrissey**

**Summary**

This text is the second book in a series about a young girl, Sarah, and her travels between the real world and a land known as The Great Kettles. In this book, she takes a detour on her way to the library from school. She stops to see her friend Sam, who owns The Magic Door Toyshop. It’s through a magic door in Sam’s shop that people from her world can get into the Kettles, and people from Kettles can get into hers. In Sam’s store she meets Ira McHoul, otherwise known as Old Man Winter. After stowing away in Old Man Winter’s cart and traveling back to the Kettles, she discovers that he has been take hostage, and it’s up to her and Jack Frost to save Old Man Winter and keep his vengeful former assistant, Kudgel, from wreaking weather havoc in both worlds!

This book relates to the 6th grade standard mostly in regards to natural and human-caused changes to the atmosphere, and a little bit in terms of air as a mixture of gaseous elements and compounds (Old Man Winter is responsible for all weather in both worlds and Jack explains how frost works to Sarah).

**Rationale**

This text is similar to Where the Four Winds Blow in its ability to engage reluctant readers. The writing is fairly simple, with little vocabulary that a 6th grader wouldn’t be able to understand. The concept of winter weather and the severity of storms is something every student is familiar with. If successful in terms of content, this book is part of a larger series that can be used to encourage students to read outside the classroom.

The text can be used to activate schema for all students through the fantasy world of the Great Kettles. This imaginative approach will appeal to students who otherwise might not be actively engaged in a science book, and the book has a number of characters through which the
students can see themselves. Students can choose to see themselves as the protagonist, Sarah, or her new friend in Kettles, Jack. Because they are younger characters, students can identify with them as they struggle to solve a problem that seems larger than they can handle. Their success can help students realize that nothing is impossible with enough effort.

Usage of Text

This text will perform a similar function as the previous one, as an augmentation to the official text in the Preparation stage. It will be used mainly outside the classroom, with pieces incorporated into the classroom as an introduction to the unit. Because of its lower reading level, students will be assigned to read this text individually, with guided discussions as part of the classroom instruction. Students’ comprehension can be assessed through class worksheets and discussions.

Readability

This text was looked at using both the Fry readability formula for assisted reading and the SMOG formula for independent reading. According to Fry, this text is at a 4th grade reading level. The SMOG formula rates this book as a 6th grade level for individual reading, making it appropriate for the manner in which it will be used. There is limited vocabulary that will not be familiar to a 6th grade student, although a KWL or modified cloze might be beneficial before using the book to assess students’ abilities to handle the material on an individual basis. Using Bader, this book is very accessible to 6th graders, thanks to a clear and appealing writing style, appropriate format with some illustrations to guide independent readers, and logical thought progression and concepts.

Reference

Item Four: *The Dark Secret of Weatherend* by John Bellairs

**Summary**

Anthony Monday is a 14-year-old boy living in rural Minnesota in 1954. It is a blisteringly hot August, and he and his best friend, the elderly Miss Eells, stop by the creepy deserted old mansion named Weatherend. Weatherend was the estate of eccentric J.K. Borkman, where he manically obsessed over and observed weather until he died in the mansion. When the renovation of the dilapidated Weatherend starts suddenly by Anders Borkman, the son of J.K. Borkman, and coincides with the frightening weather that rips through the state, Anthony and Miss Eells think that there is more than meets the eye with the newest addition to their small town. The text deals mainly with the 6th grade standard about natural and human-made changes to the atmosphere.

**Rationale**

This text is a great way to engage reluctant readers because of its unique genre. Mysteries are not normally associated with anything in science class, so the fact that students will get to sleuth along with the characters will keep them engaged and allow them to “see themselves” in the characters. This book is another example of how teachers can employ a single book from a series to capture students’ interests and encourage reading outside the classroom.

For all students, Anthony is an easily identifiable character as a young teenager with quirky friends and an insatiable curiosity. Through a familiar character and concepts that students encounter in a traditional textbook, the book provides the students with a personal bridge to learning. By using a mystery, the teacher can help students implicitly learn valuable reading skills just by following along with the methods and steps the main characters employ.
Usage of Text

This text will be used in conjunction with the official text. It will likely be used in the Assistance phase to increase comprehension and understanding of the concepts of human-weather interactions and manipulation of our environment. However, it can be used in the Reflection phase to include discussions that extend the reading experience and increase the students’ awareness of the world around them. Because of its grade level, this text must be used instructionally by the teacher, preferably as a read-aloud or read-along and as part of a structured lesson.

Readability

Using the Fry formula for readability, this text is right at the 6th grade level. This means it must be used instructionally if used with 6th graders. The complex sentence structure and some higher vocabulary will frustrate most students if read on an individual basis. The story is easy accessibly for 6th grade students, and the writing style and conceptual factors are on target for this audience.

Reference

Item Five: Category 7 by Bill Evans & Marianna Jameson

Summary

This text is an adult fiction novel about Hurricane Simone- a Category 7 hurricane that is the strongest storm on record. It has a complex plot, involving a number of characters and subplots, which may confuse or frustrate students. The protagonists are Kate Sherman and Jake Baxter, two complete strangers and an unlikely team, who must join forces to stop the deadly natural disaster. Add in the fact that Hurricane Simone isn’t really a natural disaster and things get messy. Billionaire Carter Thompson has created this storm that threatens the entire Eastern U.S. and it’s up to Jake and Kate to stop it.

This text will help fulfill the standard that requires student understanding of “natural and human-caused changes to the atmosphere.” This is an exaggerated case of “what if,” but successful nonetheless in showing students how devastating human manipulation (intentional or otherwise) of natural systems could be.

Rationale

This text will engage my most reluctant readers because of the method in which I plan to use it. Reluctant readers are often shy and embarrassed about their reading skills. By reading this text to students, reluctant readers will be more open to listening and involving themselves in the text. If students enjoy the content of this book, it will open new doors to reading, either through similar content books at a lower level or through other books by this author.

The characters may be hard to identify with, mostly due to the age gap, but thankfully the author has created very real characters that the students might be able to compare to a relative, parent, or friend. This text might activate the schema for all students by the relevance of the content. The book compares a Category 4 hurricane to Hurricane Simone, and gives the specific example that Hurricane Katrina was a Category 4. With the amount of media following Katrina,
and the fact that most students on the East Coast have witnessed at least one hurricane in their lives, students will already be familiar with certain terminology and concepts. This previous exposure and prior knowledge will provide a link to the book and allow for a personal bridge to learning for the students.

**Usage of Text**

This text will be used in conjunction with the normal unit and text. It will be used in the Preparation stage of PAR, definitely at the instructional level. There are two ways I envision this text being used. First, this text could be used as a teacher read-aloud at the beginning of class. It could be used over the course of the entire unit, as a way to calm students, gain their attention and engage them in the content. Because of the mature nature of pieces of the text, this would allow for the teacher to pick and choose which chapters or passages were the most pertinent to read. Originally, I had planned to use this book perhaps as a guided reading. Having read the book in its entirety, I can safely say I will probably never use it in that capacity. The content is definitely not appropriate for 6th grade and the sentence structure and progression of the text is very complex. However, the text has a number of great chapters describing the storm with great detail and accuracy, which could provide a more scientific approach for those students who are intrigued by the ‘hows’ and ‘whys’ of a hurricane. It is still very possible to use this text to engage students in both the content and reading in general.

**Readability**

The readability of this text was found using the Fry formula. A reading level of 7.7 indicated that this text is slightly above the instructional level of a 6th grader, and more than likely going to be at a frustrational level without intervention. There’s some difficult vocabulary, which should be addressed before reading the text. Also, using this text as a read-aloud will allow students to handle the complex sentence structure better than if they were buddy reading or
reading individually. It is a longer book, with some content too mature for 6th grade students. Ideally, selections would be chosen to engage and help students instead of them struggling with the text as a whole.

Reference

**Item Six: Weather Eye by Lesley Howarth**

**Summary**

Telly Craven is a thirteen-year-old British girl whose family runs a windfarm business. After a near-death experience when a turbine crashes on her during a horrific storm, she wakes up unafraid of anything. With the help of her younger brother, Race, and a group of climate observers who call themselves Weather Eye, she sets out to calm the planet’s changing new weather. The text deals with the 6th grade standard regarding the relationship of atmospheric measure and weather conditions, as well as the importance of protecting and maintaining air quality.

**Rationale**

This book will engage the most reluctant readers because it portrays much of the SOL information in a manner which disguises it from the students. Because of the journal that Telly keeps and the online conversations by which she keeps in contact with other Weather Eyes, students will be learning about weather patterns and other concepts, but through a method that they understand much better than just reading a textbook. In terms of reading in general, this book will hopefully engage reluctant readers through the characters. Set in England, some of the vocabulary is unfamiliar, and may encourage readers to learn more about that country. Additionally, the way in which the Weather Eyes keep in touch could push students to start their own club or a weather blog.

The text might activate schema for all students through the easily identifiable characters and the connections they have. Telly is near the age of 6th grade students, and many will have siblings they can compare Race to. Her family owns their own business, which is not uncommon in today’s society, and the effects that this has on the family life are discussed in detail in the novel. There are a number of characters within the Weather Eye group that any student can
identify with through themselves, their friends or family members. Through the emotional connection with the family, and the ability of a group of teenagers that are empowered to change the world, students will be able to connect with this novel and create a personal bridge to learning.

**Usage of Text**

This text will be used in the Reflection phase of PAR, and will augment the official text. The themes involved in this text (especially dealing with the ability of young students to make a large difference on a global scale) provide a great method of extension for the students, and because they will be able to relate to it, will increase retention. This text should be used instructionally. Although it is below a 6th grade reading level, guided readings and other in-class, structured options would probably work best due to the nature of the dialogue and vocabulary and other options may be more suitable for struggling readers. For more advanced students, it may work better as an independent reading. All students’ retentions will be monitored through class discussions.

**Readability**

The readability level of this text was found using the Fry formula, and is at grade level 5.3. This seems almost appropriate. The concepts are appropriate and presented in a logical manner, but the writing style might be challenging for a fifth grader. Because the book is set in England, there are some words students may not be familiar with, and some of the dialogue between characters will prove difficult. For these reasons, this text should be appropriate for 6th grade students at the instructional level.

**Reference**

Item Seven: *Tiger of the Snows* by Robert Burleigh & Ed Young

Summary

In this poetic book, Burleigh & Young tell the story of Tenzing Norgay, a Nepalese boy whose dream was to climb Mt. Everest. He practiced carrying rocks and dreamed of the day he’d climb it himself. As a Sherpa, he finally fulfilled his dream by leading an expedition with Sir Edmund Hillary and became the first team to reach the summit of the mountain. This book allows for a more human perspective, and uses the difficult climb as a way to illustrate the 6th grade standard concerning how the atmosphere changes with altitude.

Rationale

This text will engage reluctant readers through the style of the book. It is written in free verse, which gives students the feeling that it is short, but still covers a great deal of material and a wide range of emotions. The beautiful illustrations help students gain a better understanding of a style of writing that may otherwise not be accessible to them. The poetic flow of the book may interest reluctant students to pursue other means of reading such as poetry or music. Using other methods to learn can excite and encourage students to find those that work best for them.

This text might activate schema for all students through the dreams, struggles, and success of Tenzing Norgay. 6th graders might not be able to “see themselves” through a young Nepalese boy, but everyone can understand how important dreams and goals are, and the feeling one has when they achieve their goals. Through the themes presented, students will be able to forge a more personal connection with someone who they might have originally not considered anything like themselves.

Usage of Text

This text will augment the official text, most likely in the Preparation stage of PAR. It will be used instructionally, and more than likely as an introduction to a unit as a read-aloud. It is
a fairly simple text; however, the structure of the stanzas themselves may cause some students difficulty. Therefore, having the students listen to the teacher’s reading may be more beneficial, especially as an example of fluency for ELL students. Having a copy for students to see the illustrations may also help, since for this text the illustrations tell half the story.

**Readability**

For this text, readability was difficult to calculate. Using Flesch-Kinkaid and maintaining the original structure, the reading level was found to be .5. However, it’s hard to believe that this text is anywhere near the 1st grade reading level. If the structure is removed, and stanzas are considered sentences, the reading level jumps to 8.1. This seems to be a more likely reading level for the text. Without any rhyme or obvious meter, this text would be difficult for a 6th grade student to comprehend individually. The identifiable themes, appropriate content, beautiful illustrations, and simple vocabulary make it a great fit for the instructional level.

**Reference**

Item Eight: “Beijing to Keep Skies Clear on Games’ Opening Day”

Summary

This article from China Daily deals with the Beijing’s Meteorological Bureau’s guarantee that the weather for the Opening Day ceremonies for the Summer 2008 Olympic Games will be clear and dry. It goes into further details regarding a method of precipitation control called “cloud seeding” and how China plans to use it in order to ensure clear skies for the Opening and Closing ceremonies. The article very succinctly deals with the 6th grade standards regarding air as a mixture of gaseous elements and compounds and the effects of natural and human-caused changes to the atmosphere.

Rationale

This text will engage reluctant readers because of the relevance of the material. Often students are looking for a purpose when they are requested to read a text or perform an assignment. Here, the students can see for themselves that what they learn in science class has very useful applications. Reading about this topic may encourage reluctant readers to pursue reading in different areas, be it other applications of seemingly “useless” material or perhaps more about the Olympics or Chinese culture. The ways in which students can connect to this article are numerous. In activating schema for all students, teachers can use the same ideas as for reluctant readers and perhaps extend them.

Usage of Text

This article would be used as part of the Reflection stage of PAR, as an activity for one class period. Because of the reading level, it should be used by the teacher at the instructional level. It wouldn’t necessary replace the official text, but might be used at the end of the unit as an extension of the material covered. In order to get the most out of the text, students should be presented with new vocabulary beforehand. Doing a guided reading will allow for teachers to
monitor the students’ comprehension and retention of the material, plus it allows for student
discussion and questions, thereby increasing engagement and interest in the material.

**Readability**

Based on the Flesch-Kincaid formula, this text is at the 11th grade reading level. This is
more than likely higher than it’s actually reading level. The use of Chinese names, repeated
multi-syllabic words (e.g. meteorologist), and long sentences probably biased the formula. Using
a Bader analysis, the content for this article is definitely suitable for 6th graders and with some
assistance, it is reasonable that students at a lower reading level could handle it as well.

**Reference**

Beijing Organizing Committee for the Games of the XXIX Olympiad (2008 Olympics), (2007,
April 26). *Beijing to keep skies clear on Games*. Retrieved June 10, 2008, from