



Annotated Reading List:
Engaging Grades K-5 with Strand 2 and 3 Science Requirements
cns.asu.edu/education/k-12

Goodnight Moon (Level - K)

This book can be used to talk to Kindergarteners about changing technologies. The pictures in the book include a rotary telephone, a wood fire being used to heat the house, clothing that is hung to dry by the fire. Students can be encouraged to think about how technology has changed the way we do these basic household tasks, and whether it has changed the kinds of tasks we have to do. Additionally, they can be asked to imagine how these illustrations would look if they were based on the current technology.

Synopsis

In a great green room, tucked away in bed, is a little bunny. "Goodnight room, goodnight moon." And to all the familiar things in the softly lit room — to the picture of the three little bears sitting in chairs, to the clocks and his socks, to the mittens and the kittens, to everything one by one — the little bunny says goodnight.

The Magic Donkey Ride (Level – K-2)

This book can be used to introduce the topic of human variation and the ways creatures like Treacle feel pressure from society to hide what makes them different from others, even when their variation is something as thrilling as magic wings. Students can be encouraged to consider what society views as normal or desirable human traits are and how those perceptions often cause people to feel like they should be ashamed of, or have to hide, who they are.

Synopsis

Treacle is a donkey that lives on a farm and whose closest friend is Flinny. Flinny loves to go and ride Treacle for hours at a time. Treacle, however, is no ordinary donkey, as Flinny discovers one magical night. Treacle has wings that he hides under his saddle that no one knows about except Flinny. Treacle takes him flying around the night sky above the trees and rooftops. Then, returning to earth, Treacle has Flinny put the saddle back on and sends him off to bed.

Mike Mulligan and his Steam-Shovel (Level K-2)

This can be used to lead discussions about technological change with K-2nd grade students. This story can be especially useful in achieving strand 3 goals, in which students learn the impact of science and technology on human activity and the environment. The innovative solution for the obsolete steam shovel at the end of the story introduces important concepts such as reusing and reimagining the role of technologies that have become obsolete, rather than continuously throwing things away in order to replace them with the newest model. This discussion can also lead to exploration of how innovative solutions can be found for seemingly straightforward problems, and that the best solutions often come from new and creative reimagining of uses for aging technologies. The personal attachment of the main character in the story to the steam shovel can be used to discuss the relationship of humans to technology and the attachments we form to technologies that we use in our daily lives. Examples of this are the tendency people have to give human names to cars and project human characteristics onto them and other technologies in our lives, or the strong attachments many people demonstrate having to their iPhones.

Synopsis

The story of a steam-shovel operator and his steam shovel — the beguiling Mary Anne — , which he would not desert, even though competition from gas and diesel-motored shovels was ruining him.

The solution to Mike's problem is classic in its simplicity. Under pressure to show Mary Anne at her best, Mike digs the foundation for the town hall of Popperville and in his haste forgets to leave a way for Mary Anne to get out! The ingenious townspeople suggest that Mary Anne be remodeled into a furnace and Mike be retained to keep her heart and boiler warm.

Are You My Mother (Level – K-2)

It may be an amusing idea that a bird would think a plane, a cow or a boat might be its mother, but how do animals really know these things? This story can be used to discuss how familial relationships are constructed both by biology and by society. Students can consider how biology and animal instincts interact with society to make certain relationships seem natural and others unnatural. It is natural that kittens exhibit strong bonds to their mother soon after they are born, but what about when a kitten or a puppy is taken from its mother and develops a relationship with a person, as a pet owner, that resembles that of a mother-child relationship? What about situations in which animals do make “friends” or form parent-child relationships across species boundaries? For example, there are a multitude of cute videos available online that highlights a unique bond between an elephant and a dog.

Synopsis

When Baby Bird hatches from his egg, his mother is off looking for food. What's a bird to do? Go find his mother, of course! Fallen from his nest, he sets out to look for her and

asks everyone he meets — including a dog, a cow, and a plane — "Are you my mother?" So begins Baby Bird's hilarious, and at times very touching, hunt for his mother.

The Giving Tree (Level K-2)

This book can be used to discuss the relationship between humans and nature. The emotional ties between the person and the tree as well as the manner in which the boy takes all that can be taken from the tree, never giving anything back, can be used to introduce conversations about how people relate to nature, and what happens when we take all that there is to take and there is nothing left. Discussion can center on the role human beings play in depleting resources and how this in turn affects society. If we cut down all the trees and use them to build things, then we will become painfully aware of the benefits that come with having forests, such as oxygen production and animal habitats, not to mention outdoor recreation. We depend on nature in many different ways, how can we behave in strategic ways to make sure that the giving tree doesn't stop giving?

Synopsis

"Once there was a tree...and she loved a little boy." So begins a story of unforgettable perception, beautifully written and illustrated by the gifted and versatile Shel Silverstein.

Every day the boy would come to the tree to eat her apples, swing from her branches, or slide down her trunk...and the tree was happy. But as the boy grew older he began to want more from the tree, and the tree gave and gave.

The Very Hungry Caterpillar (K-2)

This book can be used to teach students about nutrition. This conversation can be used to discuss balance, moderation, vitamins and healthy food choices.

Synopsis

A hungry caterpillar eats his way through a varied and very large quantity of food until, full at last, he forms a cocoon around himself and goes to sleep.

The Sneetches (human enhancement) (K-5)

The Sneetches can be used to introduce human genetic variation, in that there is a wide range of biological traits that people are born with, none of which is objectively better or worse than the next. The use of a star on the belly in this story serves to highlight how truly arbitrary these distinctions can be. The story illuminates the way people are trained to value certain traits over others, making them seem more or less desirable—e.g. hair, eye and skin color. The ethical questions raised by technologies that allow parents to

select certain traits in their unborn children can be discussed in this context as well. Such conversations might include questioning how conscious decisions on the part of expecting parents regarding the genetic makeup of their children might cause people to view some traits as superior, causing society to see those who have not been genetically altered as arbitrarily inferior, much like Plain-Belly Sneetches.

Synopsis

The Sneetches is about two types of creatures, separated by having or not having stars on their bellies. The Star-Belly Sneetches think they are the best, and look down upon Sneetches without stars. The Plain-Belly Sneetches remain depressed and oppressed, prohibited from associating with their star-bellied counterparts, until Sylvester McMonkey McBean comes along with his Star-on and Star-off machines. He begins to give stars to the Plain-Belly Sneetches, and soon they are happy, for they look like their elite counterparts. The original Star-Belly Sneetches are angry at no longer being different and special, so they get Sylvester to remove all their stars. This continues back and forth until no one can remember which Sneetches were originally what, and an epiphany strikes them all at once: that it really doesn't matter whether a Sneetch has a star belly or not - they are all really the same, and can coexist and be friends with one another.

The Lorax (Level K-5)

The Lorax teaches students to consider the complex interactions between humans and nature, for instance how human activities affect the climate, air and water quality etc. Beyond the basic environmental lessons the story introduces, students can be encouraged to consider how the Onceler could have gone about achieving his goals in a different way. In this way such a conversation might address principles of conservation and land stewardship as well. The book also potentially introduces a more in depth discussion of how money, power and technological progress influence the decisions people make that might have negative impacts on the environment and human health. Why are environmentalists so often portrayed as being at odds with the business community? Is this conflict inevitable, or are there ways people can pursue financial and technological objectives without destroying ecosystems? Contradictions such as the continuing need for increased energy production in the face of climate change can be used to illustrate the complexity of these questions.

Synopsis

The Lorax is a story about the tree loving Lorax and the greedy Onceler. When the Onceler shows up, he notices a forest of truffula trees. He realizes that these natural resources could be profitable by making "THNEEDS" out of them. A thneed is a fine something that all people need. The Onceler, in his greedy state, encounters the Lorax. The Lorax "speaks for the trees because the trees have no tongues". He protests the He called his family one by one and then all of them came and started to help him. They started whacking down trees to make Thneeds, something that everyone needs. These "things" started to sell at an amazing pace and the Onceler was making so much money.

Pretty soon, something very terrible happened. In his quest for money he polluted the air, and the water, and deforested all the "special trees" from the land. This, in turn drove away the animals that had lived in the area. They had relied on the trees for food and shelter. After the very last truffula tree was chopped, his family left him with no trees and no more money. When The Lorax drifted away from the polluted mess he left a pile of rocks where he stood, with one word ..."Unless".

The Butter Battle Book (2-5)

This story introduces the cold war arms race, and the social ramifications of nuclear weapons. This conversation can also help students consider how society and political decisions can encourage negative technological developments, and how our values steer technological innovation on a more general level. Is the path of technological innovation inevitable? How do we determine what goals we choose to spend public and private money in pursuit of?

Synopsis

The Butter Battle Book tells the story of a land where two hostile cultures, the Yooks and the Zooks, live on opposite sides of a long curving wall. The Yooks wear blue clothes; the Zooks wear orange. The main dispute between the two cultures is that the Yooks eat their bread with the butter-side up, while the Zooks eat their bread with the butter-side down. The conflict between the two sides leads to an escalating arms race, each competing to make bigger and better weapons to outdo the other, which results in the threat of mutual assured destruction.

The Jungle Book (Level – 3-5)

This story can be used to discuss how familial relationships are constructed both by biology and by society. Students can consider how biology and animal instincts interact with society to make certain relationships seem natural and others unnatural. How does it affect Mowgli to identify as the human child of wolves, and how is he affected in different ways by the dissonance between what animals and humans perceive as natural vs. the social reality of the bonds he has formed with the wolves? Various kinds of relationships between human and animals can be discussed here. For instance, why is it that we consider some animals food and others companions? This book also represents a good opportunity to introduce the work of Jane Goodall.

Synopsis

Mowgli the Wolf-Boy is reared by wolves deep in the jungle. Mowgli sometimes hunts with the animals and sometimes is hunted by them! He must face unfriendly ones on his own - like the chattering army of monkeys who kidnap him to their treetop home; the ever-hungry tiger, Shere Khan; even his own kind, Man - and learn to live by the law of the jungle. These wonderful stories, each one more exciting than the last, can be read time and again for thrills, adventure, and endless insight into people and animals and their relationship.

Mrs. Frisby and the Rats from NIMH (Level 3-5)

This book can help students think about responsible innovation. Students can explore the ethics of creating highly intelligent rats without fully thinking through what it might mean for those rats. The rats now cannot live like typical rats, nor can they live like humans, creating all kinds of problems for them regarding their place in the world, as well as how they should live and survive. A parallel can be drawn with Frankenstein and other similar stories in which a scientific creation goes beyond the control of the scientist and impacts humans and the environment in unpredictable ways. Genetically modified plants, the introduction of invasive species, etc. can be used to develop a discussion of these issues.

Synopsis

Mrs. Frisby's son, Timothy, is ill just as the farmer Mr. Fitzgibbon begins preparation for spring plowing in the garden where the Frisby family lives. Normally she would move her family, but Timothy would not survive the cold trip to their summer home. Mrs. Frisby obtains medicine from her friend Mr. Ages, the older white mouse. On the return journey, she saves the life of Jeremy, a young crow, from Dragon, the farmer's cat - the same cat who had killed her husband, Jonathan. Jeremy suggests she seek help in moving Timothy from an owl that dwells in the forest. Jeremy flies Mrs. Frisby to the owl's tree, but the owl says he can't help until he finds out that she is the widow of Jonathan Frisby. He suggests that Mrs. Frisby seek help from the rats who live in a rosebush near her. Mrs. Frisby discovers the rats have human-level intelligence, with a literate and mechanized society. They have technology such as elevators. They have tapped the electricity grid to provide lighting and heating, and have acquired other human skills, such as storing food for the winter. Their leader, Nicodemus, tells Mrs. Frisby of the rats' capture by scientists working for a laboratory located at the National Institute of Mental Health (NIMH) and the subsequent experiments that the humans performed on the rats, which increased the rats' intelligence to the point of being able to read, write, and operate complicated machines, as well as enhancing their longevity and strength. This increased intelligence and strength allowed them to escape from the NIMH laboratories and migrate to their present location. Jonathan Frisby and Mr. Ages were the only two survivors of a group of eight mice who had been part of the experiments at NIMH, and made the rats' escape possible.