



STEAM Up Close:

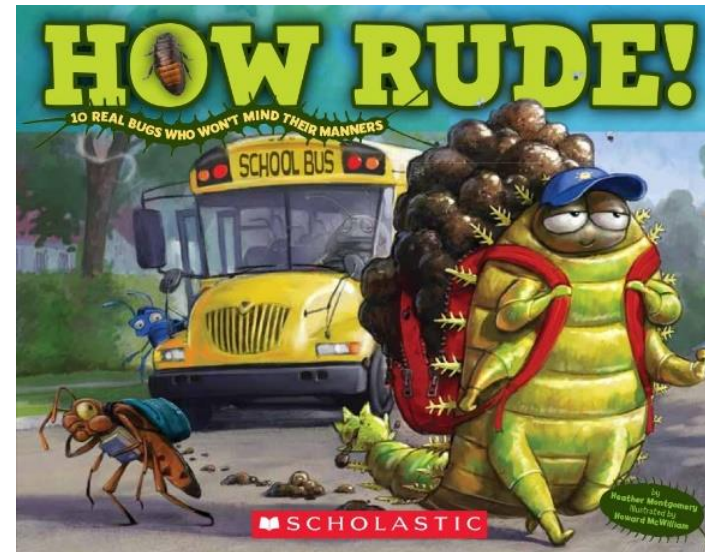
Close observation, close inquiry, close reading

Heather Montgomery

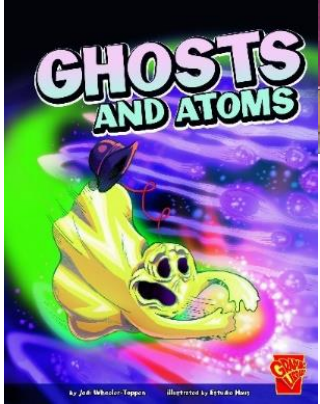
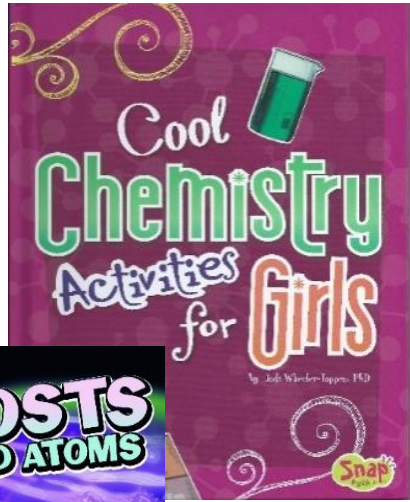
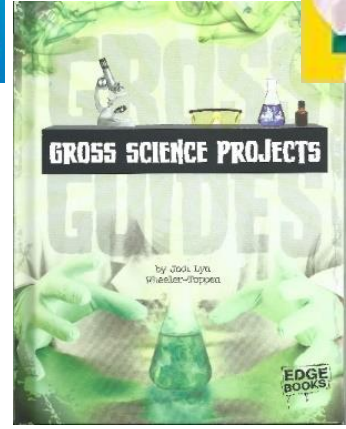
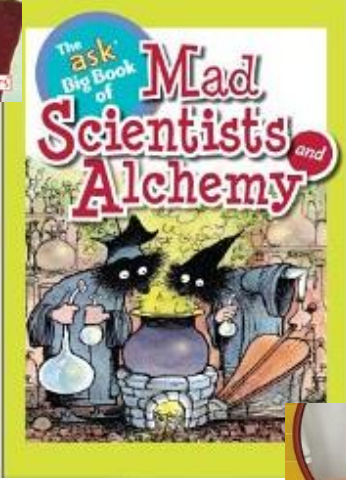
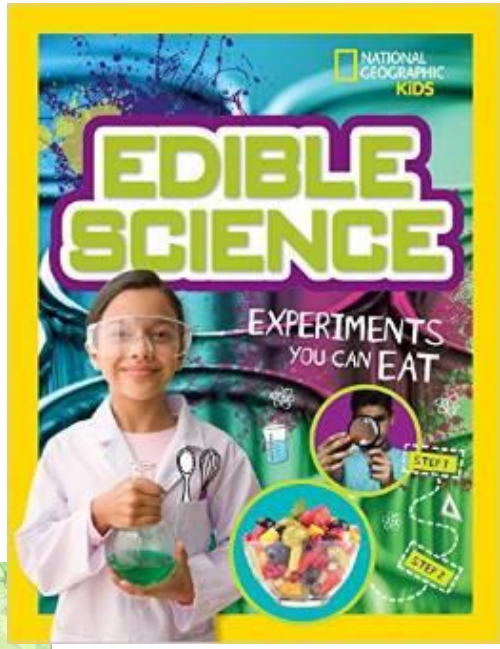
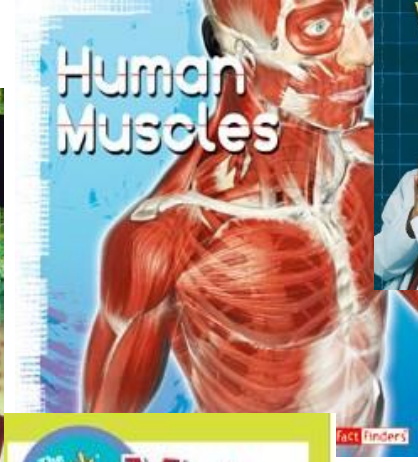
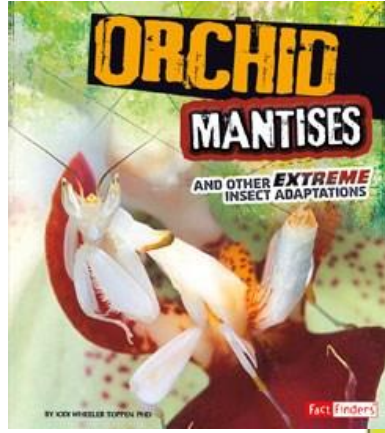
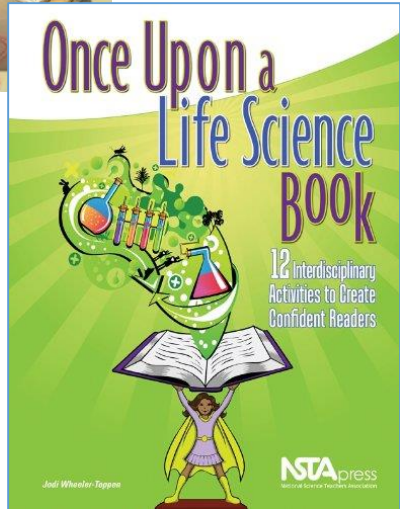
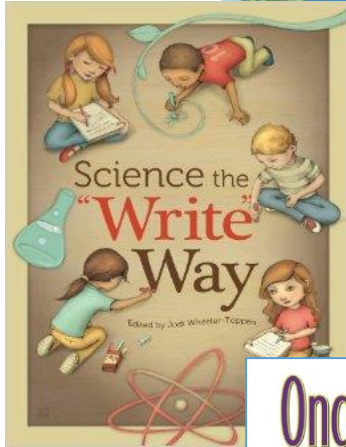
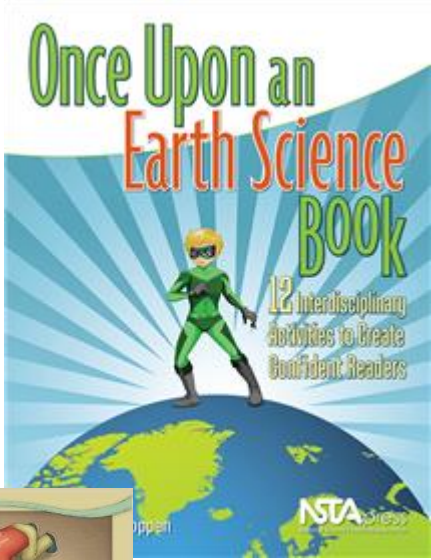
Jodi Wheeler-Toppin



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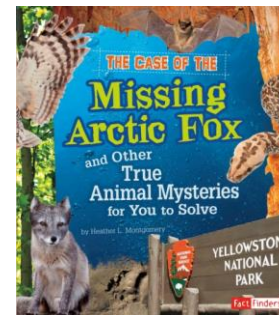
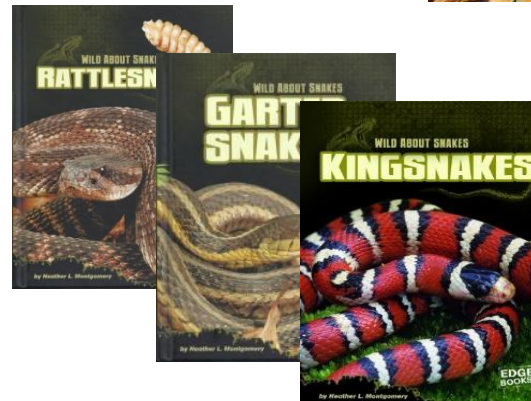
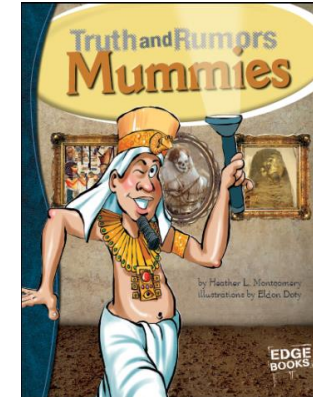
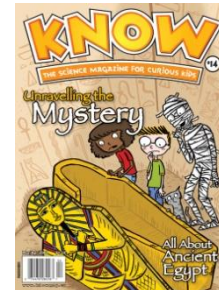
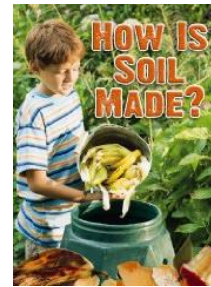
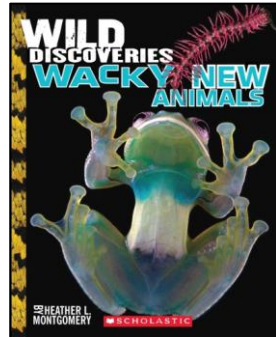
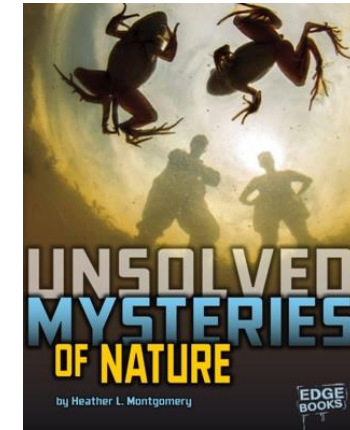
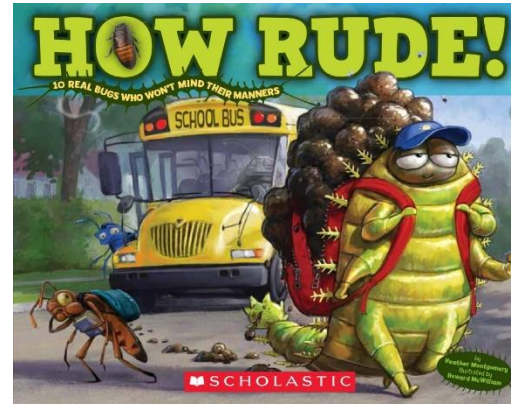
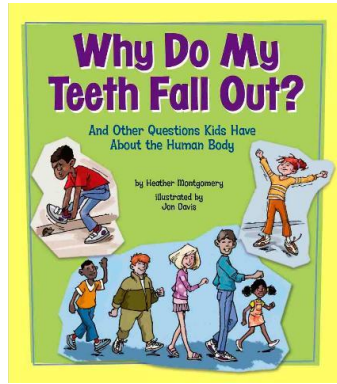


Images from:
commons.wikimedia.org/w/index.php?curid=14413030 (By Bugboy52.40);
www.pixabay.com (jcbeni and natiibio)



Jodi's Books

Heather's Books & Mags

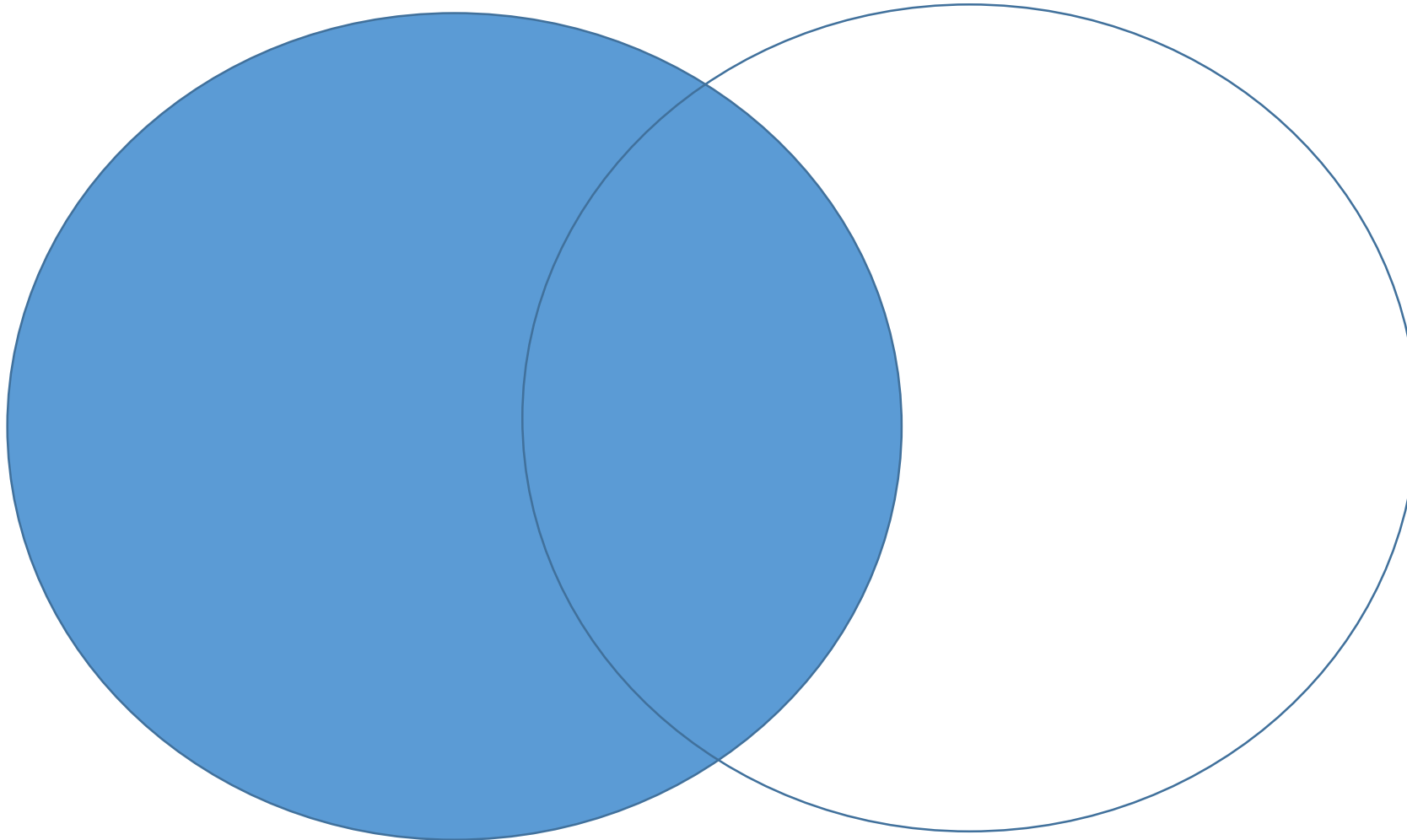


Close Reading – Real Life!



Image www.pixabay.com
by ValerieC

Write Observations About Your Insect.



Look Closely!
Consider:

- Movement
- Odor
- Mouthparts
- Can you make any inferences about what or how it eats?

I bet you could predict that we were going to have you finish your Venn diagram with a partner...

Insect Sources:

For real, live, crawly-things:

- Outside
- A student who loves bugs
- Purchase from a garden supply source (Amazon will send you 300 ladybugs for about \$10-- <http://tinyurl.com/j24qzyt>. Please do not release non-native insects into the wild!!!)

Less crawly-options:

- Insect collections in your school's science closet
- Lovely pictures from the web (try www.pixabay.com and www.bugwood.org)



Did you know? This is a ladybug larva. Seriously—they look like this before they grow up!

Joseph Berger, Bugwood.org
(CC BY-NC 3.0)

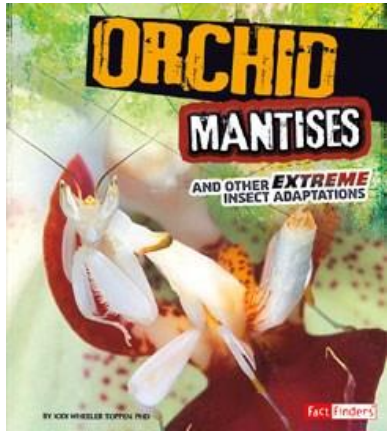
Close Reading Visuals



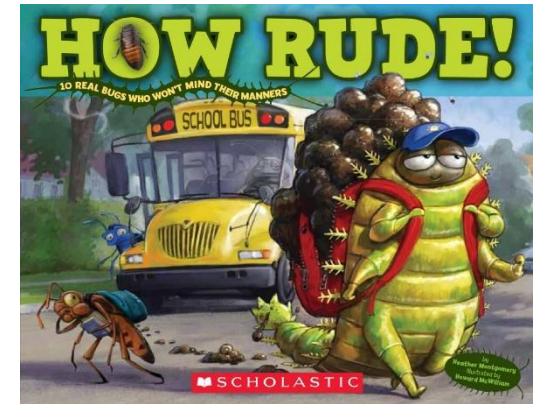
- Study the illustration.
- Write a sentence about the insect based on your observations.



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Close Reading: for Content Comparison



Dinner is Dead

The American burying beetle collects dead animals for its young. The male and female beetles dig a hole for a small corpse. Then they strip off the fur or feathers. The parents chew up the meat for their youngest larvae.

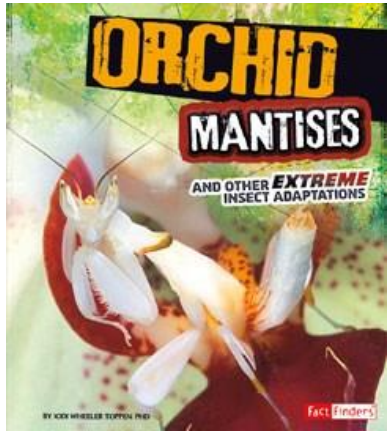
The bodies of these beetles are adapted for this lifestyle. Their legs are shaped for digging. Their sharp mouthparts help them slice off the skin. They even produce a liquid antibiotic to spread on the dead body and slow down decay.

UpChuck Eater

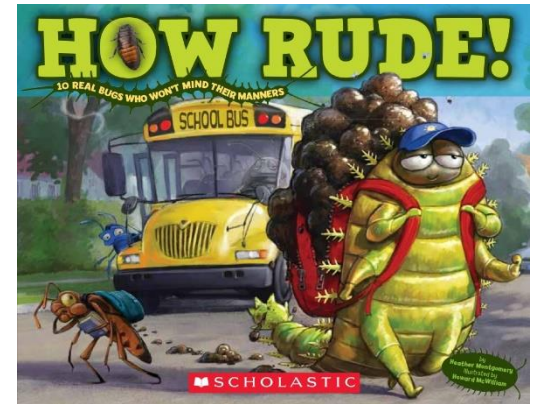
The burying beetle larvae live next door to their meal - a dead bird soaked in spit. But still, these lazy guys nag their parents.

They demand room service! Whenever Mom or Pop Beetle comes by, the kids beat on their parents' shells.

Tap, tap, tap. The parents are pushovers and barf up some dead meat.



Close Reading for Voice/Word Choice/Tone



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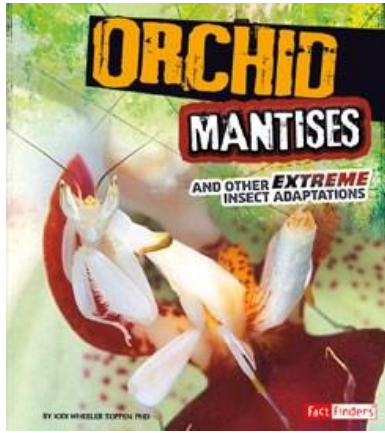
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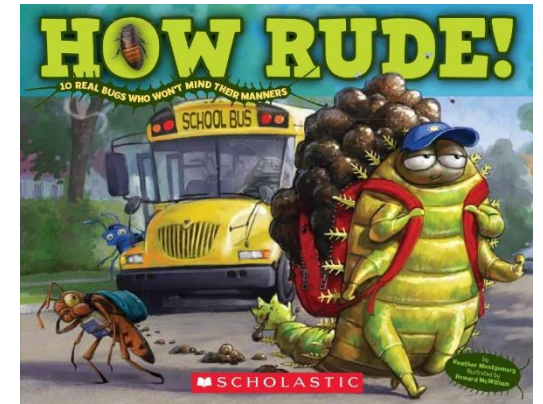
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Close Reading – REAL Writers Do It, Too!



Hot Spot!

By Janet Fox

"Here it comes!" my son Kevin shouted.

We felt a rumble beneath our feet. We heard a noise like a roaring train. Boiling water shot out of the ground and blew high into the air.

We were watching a geyser in Yellowstone National Park. Yellowstone covers a big part of Wyoming plus parts of Montana and Idaho. Geysers, hot springs, and mud pots fill the park. That's because much of Yellowstone sits in a giant volcano.

Hundreds of thousands of years ago, the volcano at Yellowstone erupted. The explosion was huge. It left a crater in the earth called a caldera. Much of the park is in the caldera.

This is Old Faithful Geyser. Old Faithful erupts about every 90 minutes.

Hot rock lies deep inside the earth. It boils water in the ground. The hottest water becomes steam. The steam forces water up through the ground, making a geyser.

Some geysers shoot water to a height of 200 feet. That's more than twice as tall as the White House.

Snow-white rock, called sinter, covers the ground around the geysers.

Yellowstone National Park contains a giant volcano. For this reason, geysers, hot springs, and mud pots fill the park.

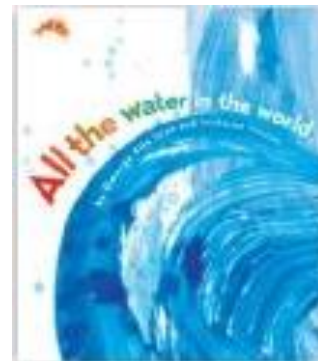
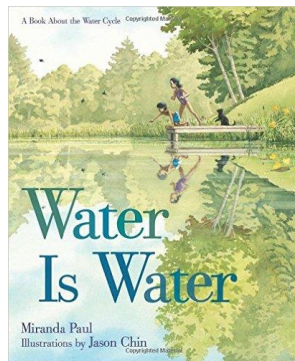
4 italicized words
words - 27
A 15
sent. 36
Sent/A 2.4
words/sent 8.5
char./word 4.3
Passive 26
F Reading Ease 81
Grade 3.7



Great Compare/Contrast Titles

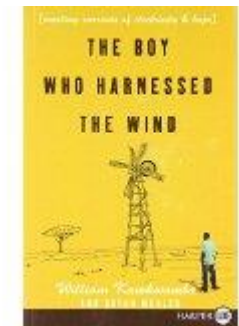
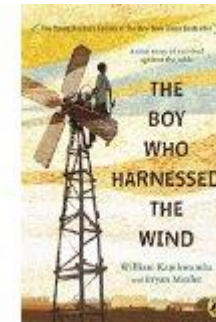
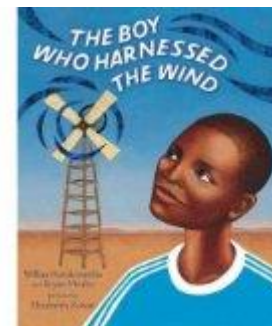
Water Cycle

Water is Water, Miranda Paul
All the Water in the World, George Ella Lyon



Electricity & Invention

The Boy Who Harnessed the Wind,
Willima Kamkwamba and Bryan Mealer



STEAM connection: Arts and Engineering

Head over to the
MakerSpace:

Suppose you wanted to trap a
burying beetle. How would you
build your trap?



Susan Ellis, Bugwood.org

My attempt



What I caught



Spotted Camel Cricket



Tiny Things

Stephanie Sicor, Flickr, (CC BY 2.0)



Pitfall Trap



Flying Insect Trap

Light Trap



Student Butterfly Trap



Trapped!

Insect Engineering Project

Entomologists often prepare traps to capture insects in order to study them or determine what insects are living in an area. Farmers use traps to protect their crops or monitor when insects are active. In this engineering project, students will learn about an insect and design their own trap that is just right for capturing a local insect.

Materials: books or websites about insects that are local to your area, construction paper in a variety of colors, assorted used but clean containers (such as yogurt tubs, paper cups, take-out boxes), string, scissors, tape and glue, markers, attractants (optional: could include sugar water, bits of meat, oatmeal, perfumes, or commercial baits for common pests like Japanese beetles)

Step 1: Have students select a local insect and research the following questions:

- Where is your insect likely to be found? (near water, in certain types of plants, in the air, on the ground, etc.)
- How big is your insect? (your trap should be big enough to let it in!)
- What does your insect eat? (Some adult insects don't eat! If this is true of your insect, figure out what else it might be looking for.)
- What colors can your insect see? (some insects are particularly attracted to certain colors)
- What time of year is your insect likely to be found in your area?
- List 3 other interesting facts about your insect.

Step 2: Have student design a trap for their insect, based on their research, using the following questions as a guide:

- How will the insect enter the trap? Is there a way to keep it from escaping once it enters?
- What will make the trap attractive to your insect (think about all the research questions you answered)?
- Where will you need to place the trap and how will you fasten it in place?
- Do you need to do anything to keep other animals away from the trap? Or to protect it from rain?

Step 3: Let students place the traps in locations around the school/ school yard where their insect might be. Leave them for 1-3 days. Check the traps. Celebrate with your students if they caught an insect, even if it wasn't the one they were aiming for. Take some time to let students study their catches and then release them.

Step 4: To complete the engineering cycle, have students compare features of traps that were successful in catching insects. Let students modify their traps to make them more likely to be successful, and put them out again.]

Connect with us!

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Heather Montgomery



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Old-fashioned Jodi Wheeler-Toppen

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Compare and Contrast Frames

(Young writers and English Language Learners)

- _____ is similar to _____ because both _____.
- _____ is different from _____ because one _____, while the other _____.

Remember— you can do these orally in pairs or chorally. It still builds writing skills.

Compare and Contrast Words and Phrases

Comparison

- similarly
- in the same way
- just like
- just as
- likewise
- also

Contrast

- however
- in contrast
- on the other hand
- conversely
- whereas
- alternatively
- instead
- (but, yet, and while sometimes indicate a contrast)





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