

Knowledge at the Core of the English/Language Arts



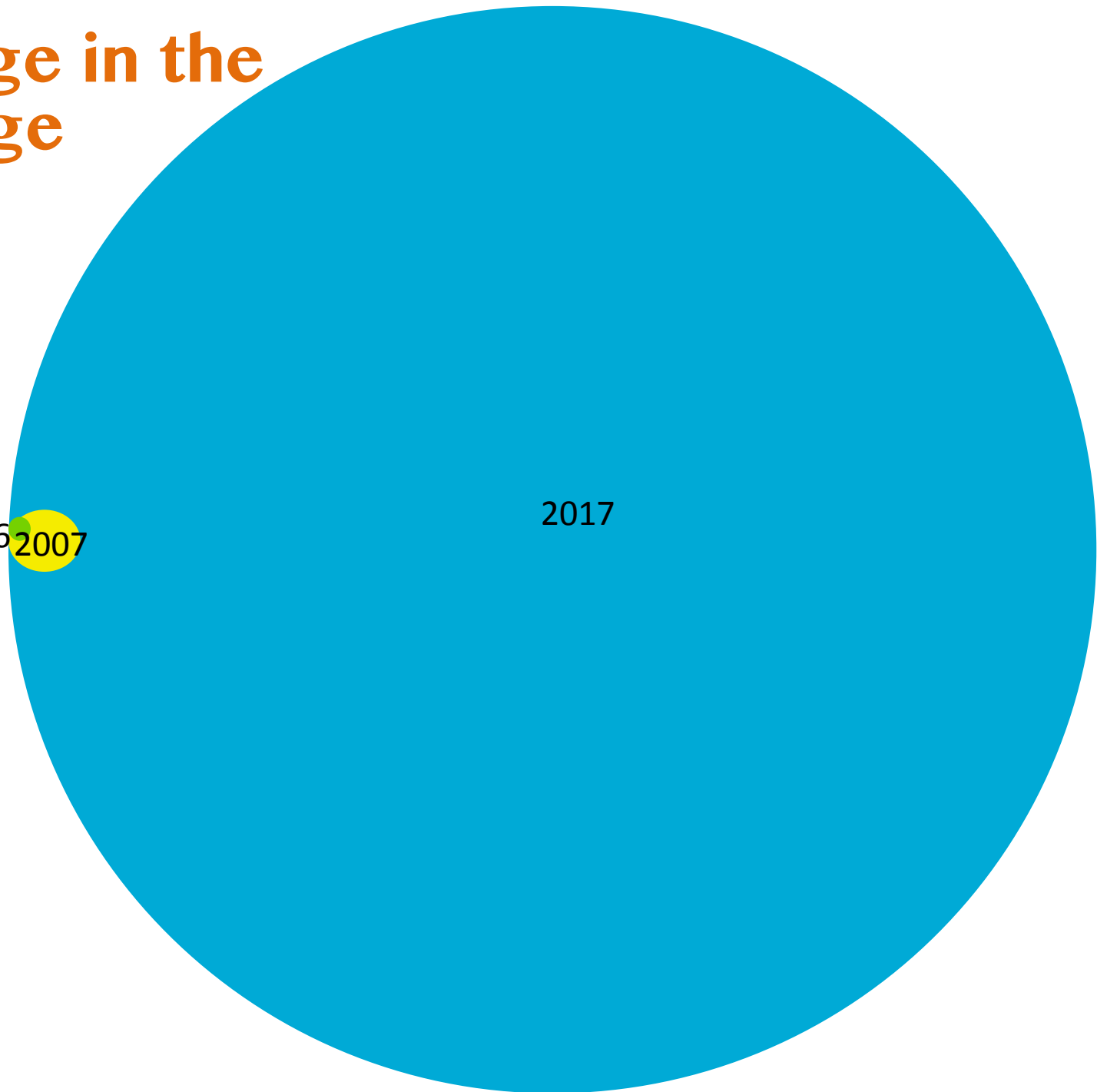
Elfrieda H. Hiebert
TextProject &
University of California,
Santa Cruz

Knowledge in the Digital Age

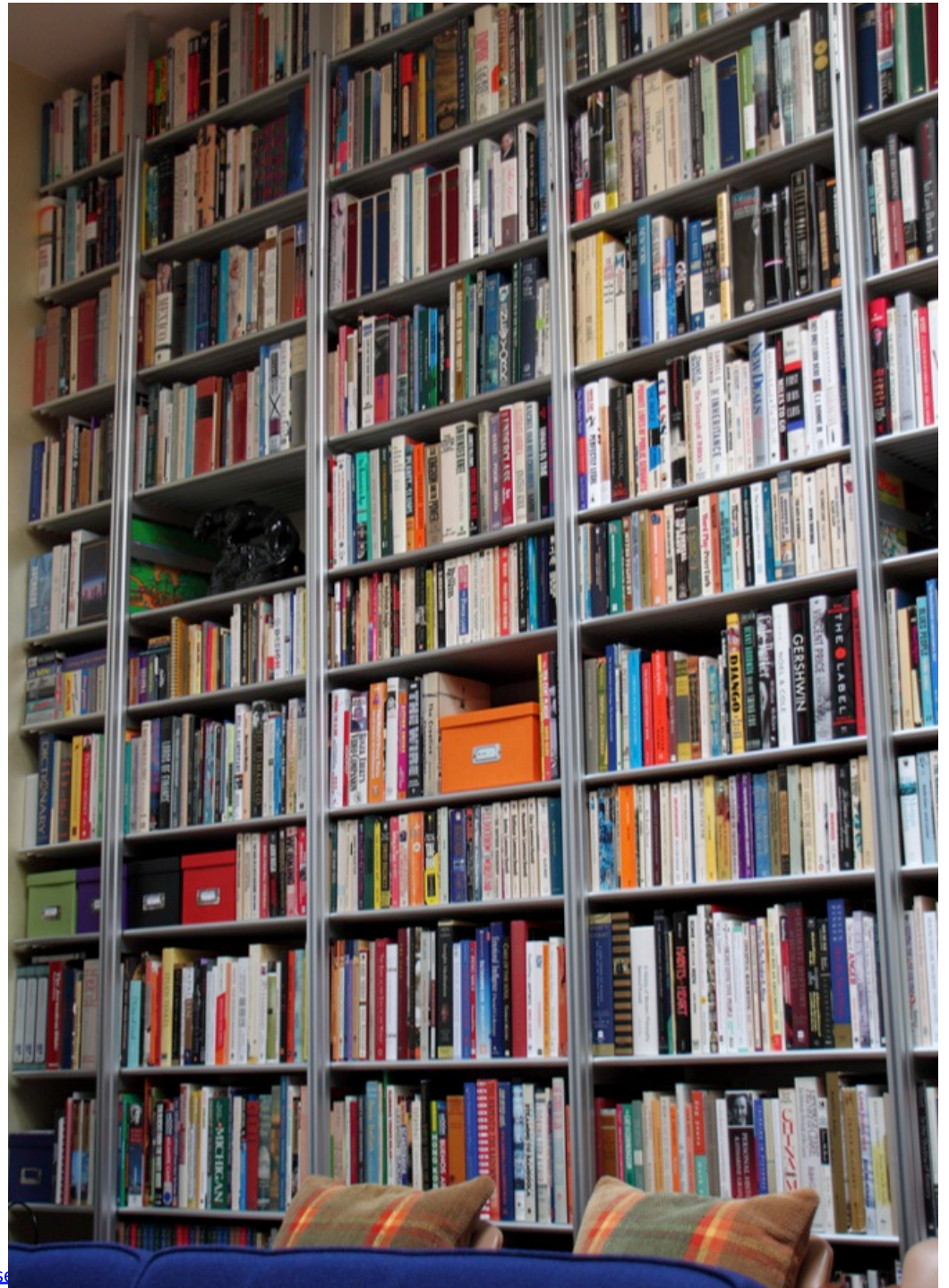
1986

2007

2017



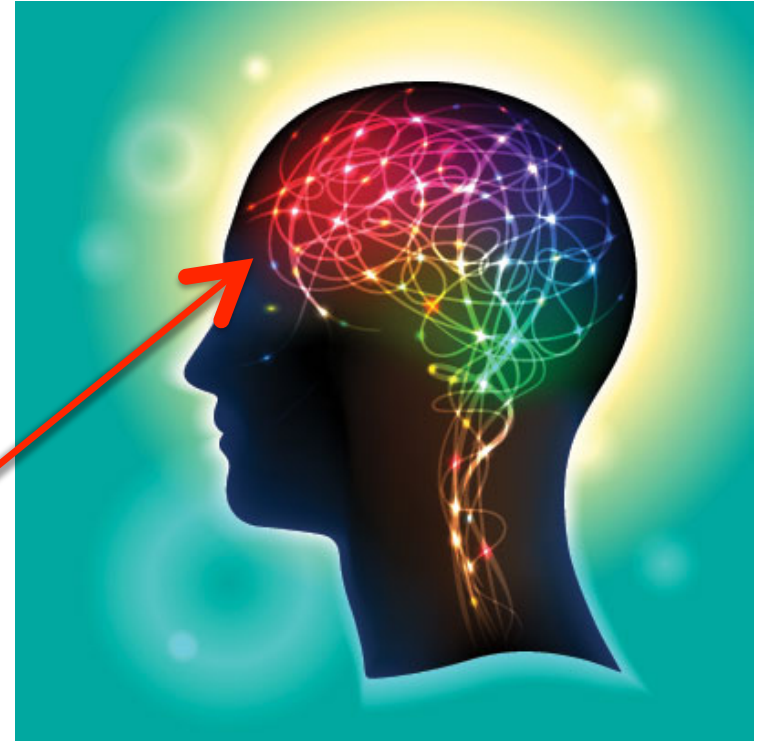
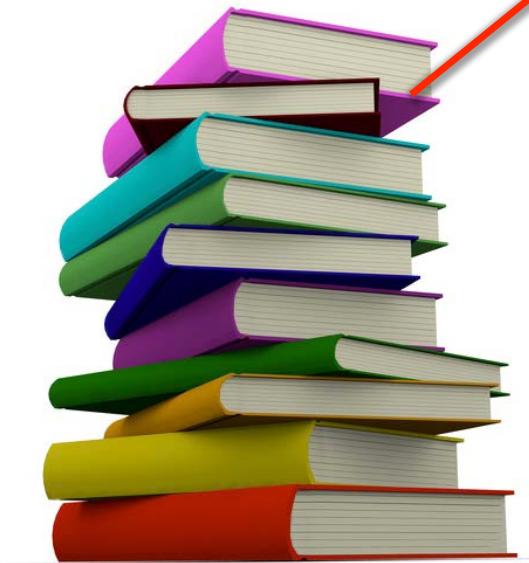
Knowledge
is “stored” in
texts and...



**texts typically
have more
rare words
than
conversations/
oral language.**



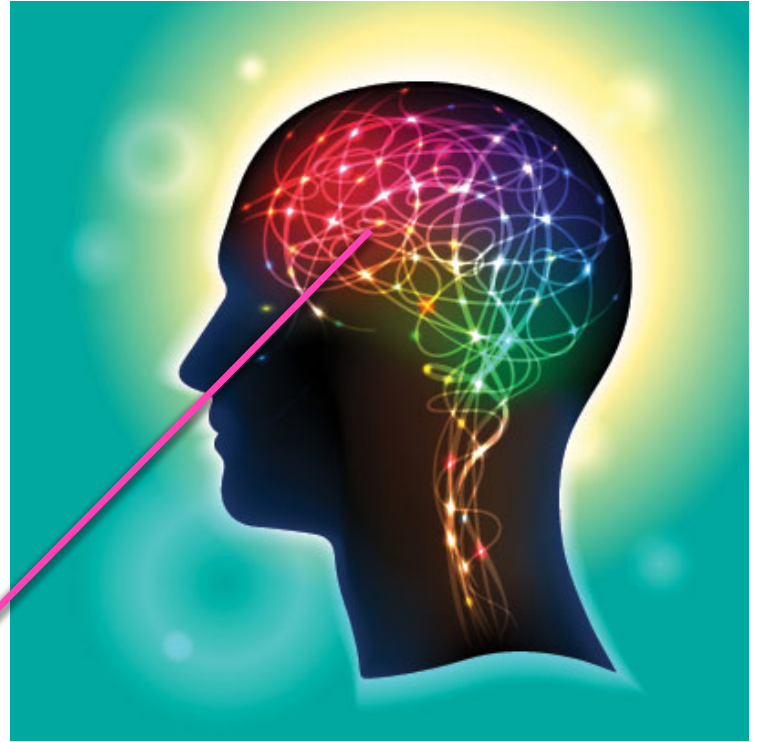
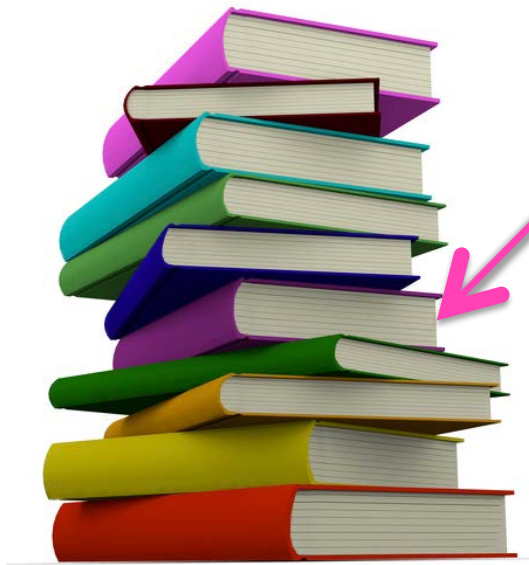
Knowledge and text

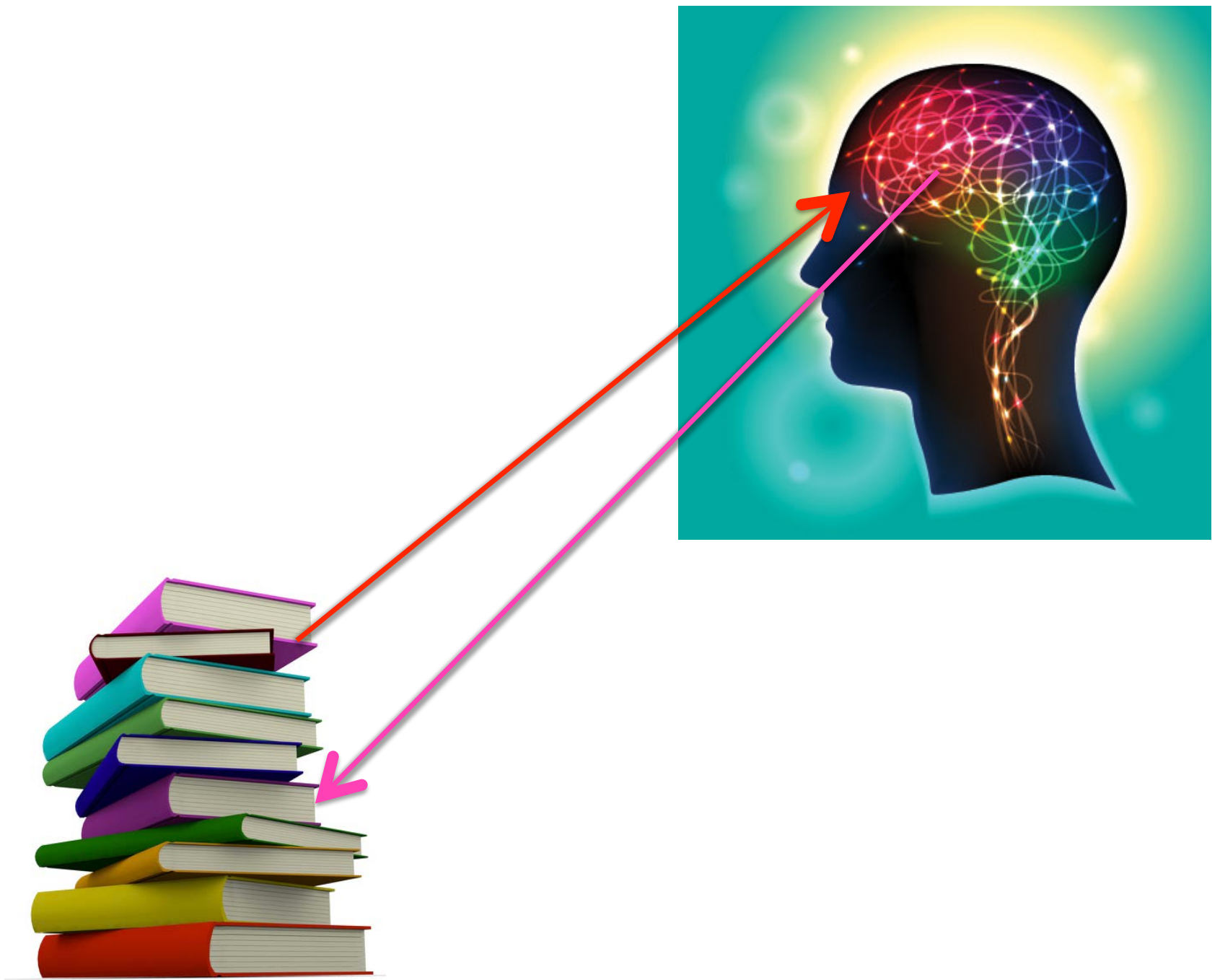


Correlation between Background Knowledge & Comprehension = .94

Reading for Understanding Network Study of Comprehension in Grades 7-12

Slide is from the presentation of David Francis (April 19, 2013). CCSS Assessments and Students with Disabilities and English Language Learners. Plenary session at Institute on Assessment in the Era of the Common Core State Standards, International Reading Association.





PRINCIPLES OF KNOWLEDGE ACQUISITION

Deep
knowledge
of some
topics



Broad knowledge of many topics



He was the largest trout I had ever caught and the most beautiful thing I had ever seen, silver and sleek and pretty as a rainbow, and I could hardly wait to take him home to Granddaddy.



We are Americans!" Miguel pipes up. He wonders what makes him a real American. Because he was born in New York unlike his parents, who were both born in the Dominican Republic? Because he speaks English? Because his favorite baseball team is the Yankees?



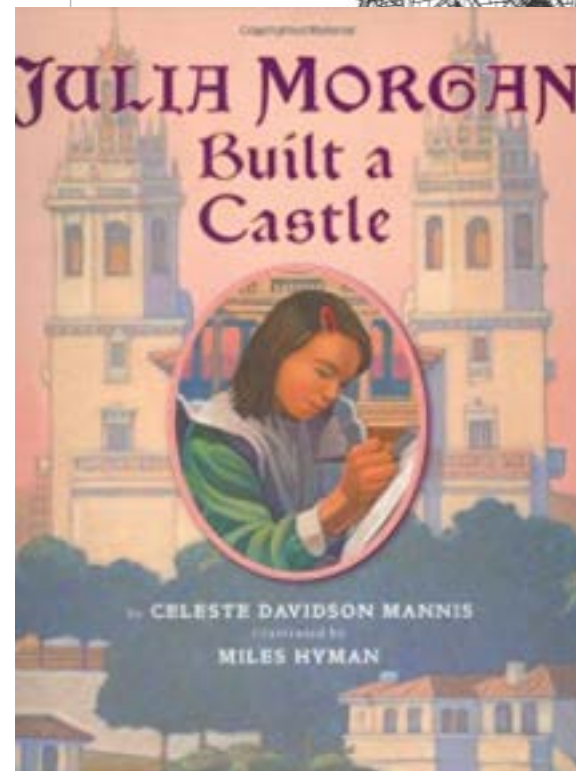
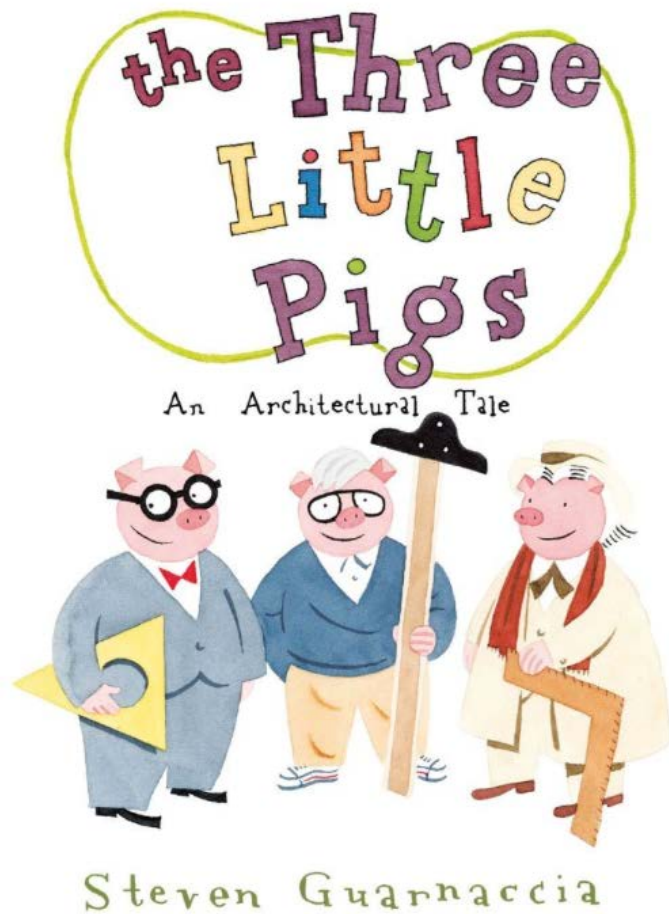
Before letting her go, scientists attached a special pop-up satellite tag to the white shark. A month later the tag automatically popped off the shark, floated to the surface, and sent data to an orbiting satellite.



A KNOWLEDGE-CENTERED ELA PROGRAM

1. Connect read-alouds, reading selections, & independent reading

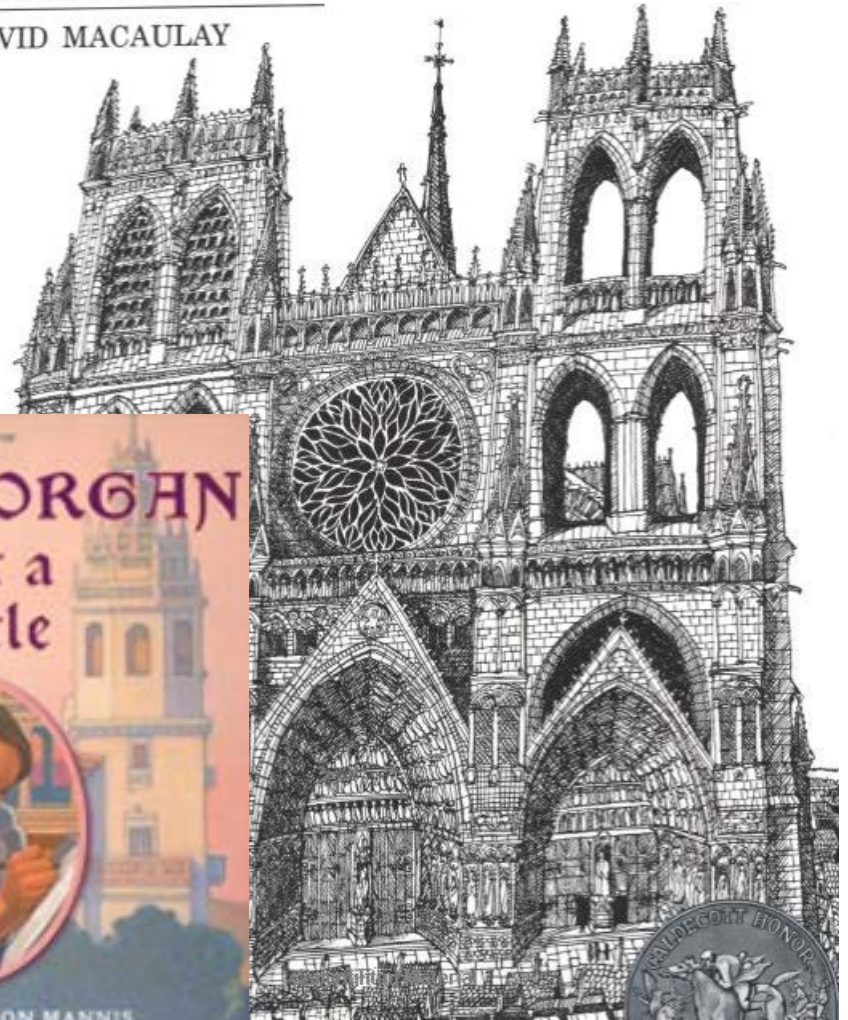
Read-Alouds



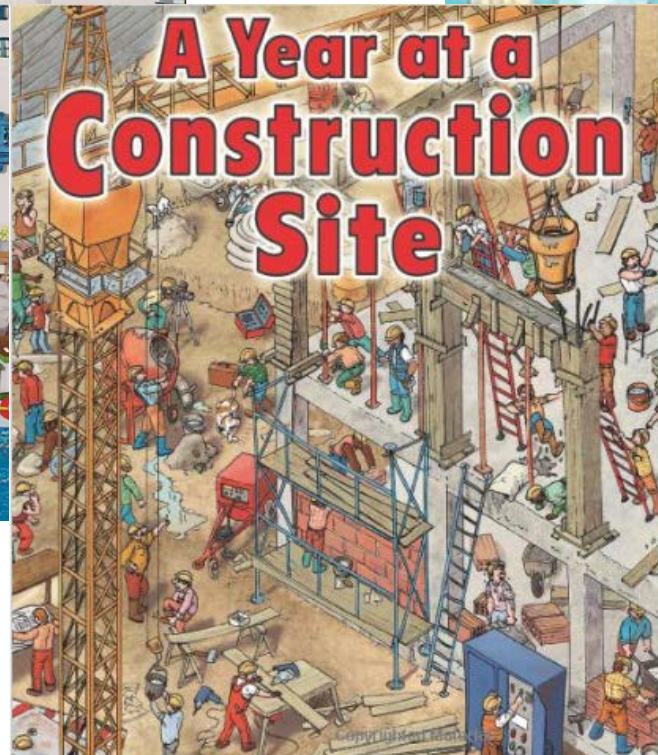
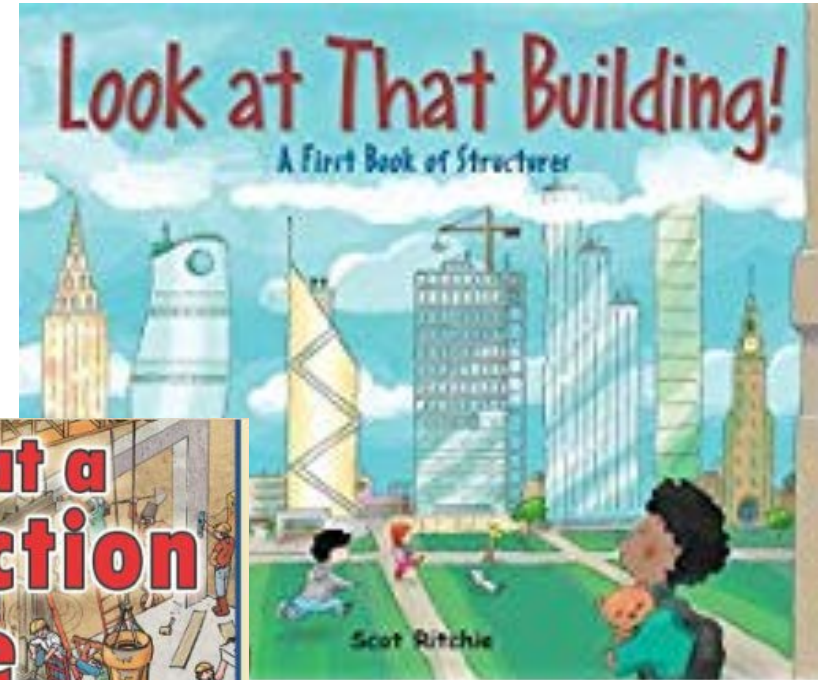
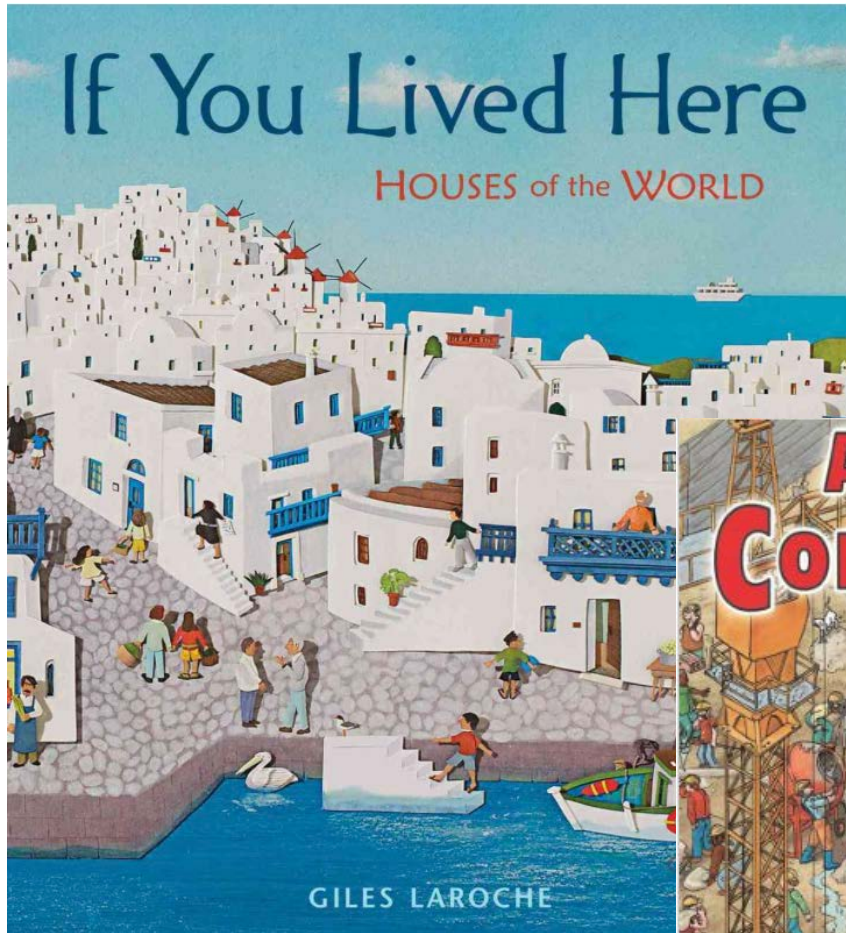
CATHEDRAL

The Story of Its Construction

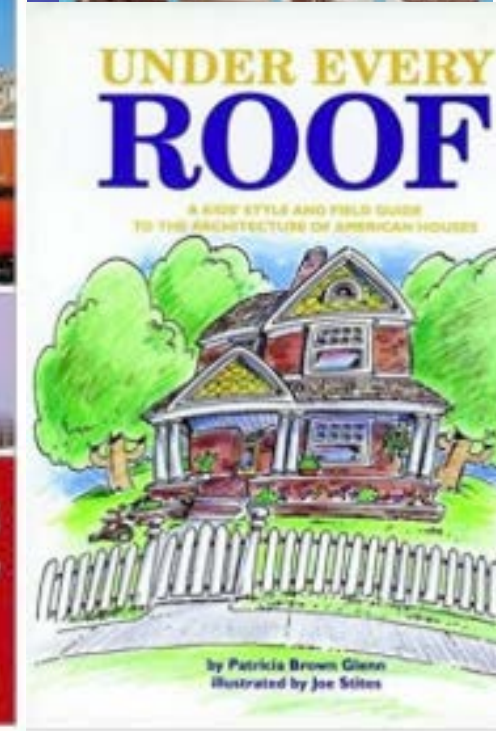
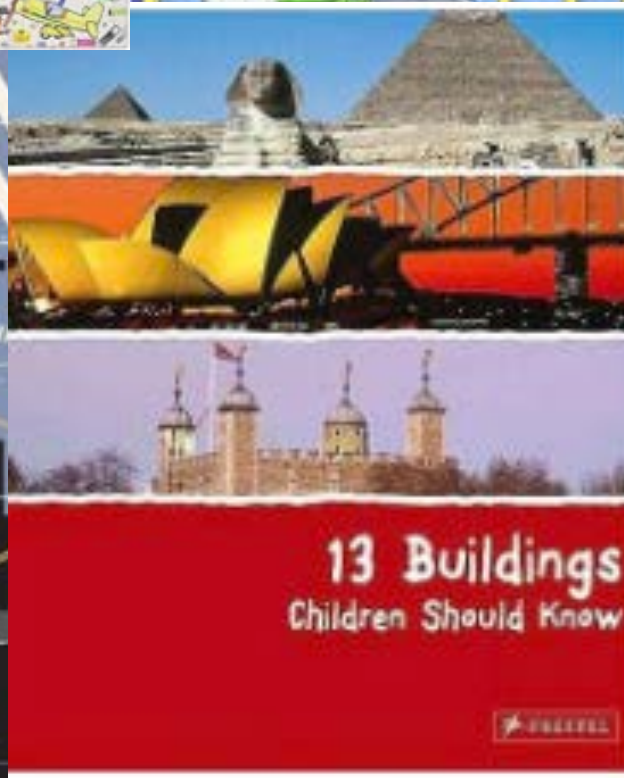
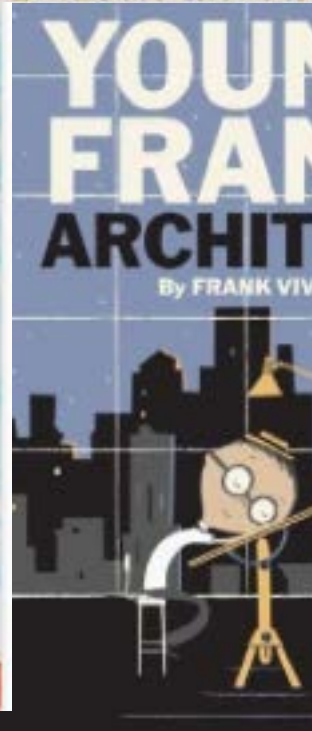
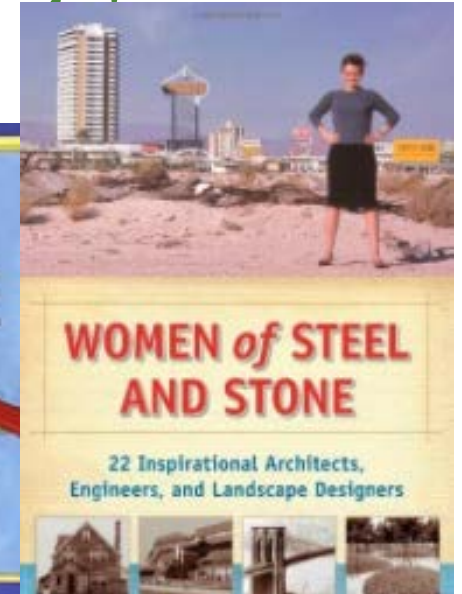
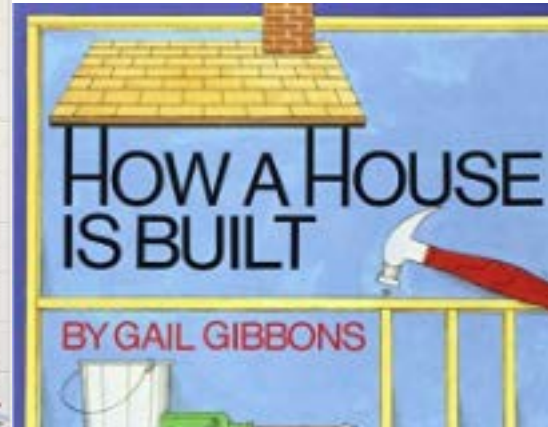
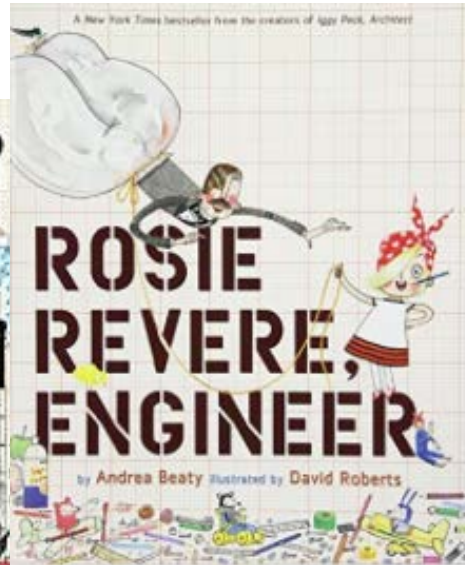
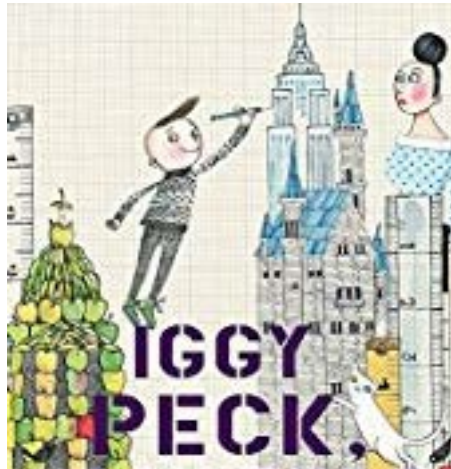
DAVID MACAULAY



Instructional Texts



Independent Reading



Vocabulary



cottage

(cot·tage)



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apartment

(apart·ment)



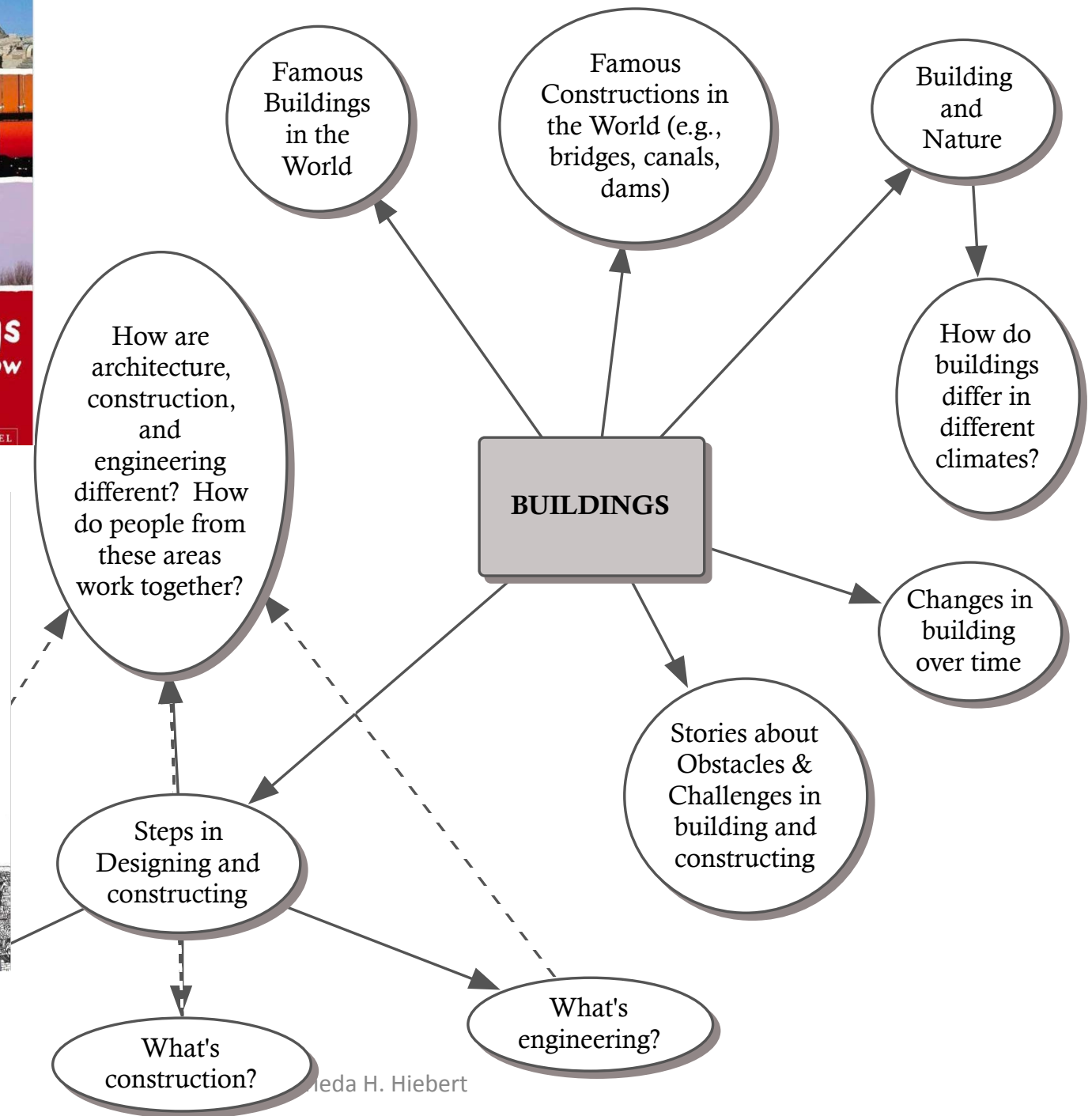
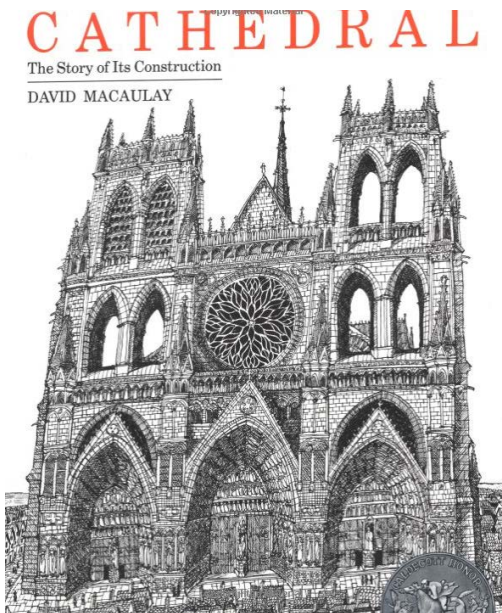
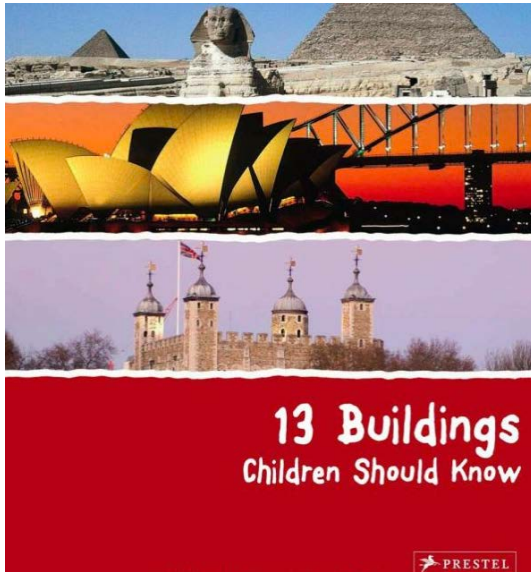
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estate

(es·tate)



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2. Engage students in magazine articles



Themes & Topics for Knowledge Foci

Category	Sub-Category
Science	Physical Science
	Life Science
	Earth Science
Social Studies	History
	Geography & Economics
	Culture
	Civics
Art & Music	Art
	Music
	Dance
	Architecture
Language Studies	Word Study
	Text Study
Human Interest	Young Inventors
	Young Heroes
	Sports & Games
	Fashion & Crafts

Bird Nests

volume 1
issue 1



Most birds build nests, but all nests are not alike. The most common bird nest is the kind made by robins. Robins build nests that look like cups. They make a frame of twigs and sticks and cover it with mud. When this is done, robins line their nest with fine moss, feathers, and hair they find on the ground.

Barn swallows build nests of mud.

They make them in barns, close to the roof where it is safe. Sometimes several swallows build nests near one another.

Some birds build their nests in unusual ways. All birds use their beaks to help make their nests, but Tailorbirds use their beak as a needle to sew leaves together. Tailorbirds use threads they gather from the cotton in cotton plants.

Some birds don't build nests at all. Some lay their eggs right on the ground or on a rocky cliff. Auks are birds that lay their eggs on rocky cliffs near the sea.

Auks' eggs are pointed at one end. This shape lets the eggs roll in a circle if another animal tries to move them or if the wind blows hard. Because the eggs can roll in a circle, they do not roll off the cliff.

King penguins also do not build nests. Instead, they tuck their eggs into the folds of skin on their lower belly. The eggs rest on their feet and stay warm in the cold arctic winds.

Some bird species also lay their eggs in the nests of other birds. Cuckoos get other birds to keep their eggs safe and to feed their babies.

Most birds build a new nest each year. Some use the same nest for several years but clean the nest a little each year. Eagles build huge platform nests that they use for several years. However different they are, though, birds build nests that are just right for their families.



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Putting Two Words Together

volume 3
issue 2



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A lot of sports that people play use balls. In basketball, players try to get a ball through a hoop. In baseball, players use a bat to hit a ball. In football, players throw a ball to get it close to the goal.

There are other words with “ball” that describe things that are round. But they are not balls with which you play a game. Meatballs are not used in any sport. But

they are great with spaghetti.

Eyeballs help in playing sports. But there isn’t a sport called eyeball where teams throw and catch eyeballs. You wouldn’t want to be in a game that uses fireballs. If you would ever see a fireball, you should get as far away as fast as you can. Then call 911 right away. You should also watch out if a cannonball is going to be fired. It is round but you don’t want to play with a cannonball. You especially do not want to catch a cannonball!

There are some words, though, that have ball in them but it has nothing to do with round. Ballpoint pens make

writing a lot easier. It’s easy to see how the “point” got into ballpoint pen. But why the ball? That part is in the name because of the tip of a pen is round. There are also rooms that are called ballrooms. People hold balls in ballrooms but they aren’t the round kind.

Other words with ball have nothing to do with round. In these words, the “ball” part of the word is not even said the same as ball in baseball or meatball. Ballerina is not ball with “erina.” Ballerinas are dancers and the word has nothing to do with ball. A ballot is used by people to vote but it is not round. You don’t even say “ball” when you say the word ballot.

Whenever you see ball as part of a word, look carefully. Usually, the word has something to do with games and sports. But remember eyeballs, fireballs, and cannonballs. These balls may be round but they aren’t used in sports! Ballerina and ballot show that some words with “ball” have nothing to do with being round.



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A Birthday Wish: Rachel Beckwith

volume 5
issue 1



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In the summer of 2011, Rachel Beckwith had just finished third grade. She was looking forward to riding her bike and playing games like jump rope with her friends. Rachel also liked dancing.

Then she heard someone say that there were children in Africa who did not have clean water to drink. The person was from an organization called

charitywater.org, a charity that builds wells for towns in Africa. The wells provide people with clean water. Without wells, people often have to walk many miles to find water, then carry it home in buckets. Often, the water is not clean.

Instead of presents for her ninth birthday, Rachel asked her family and friends to donate \$9 for clean water in Africa to charitywater.org. If she could raise \$300, 15 people could get clean drinking water.

By the time her birthday came, Rachel had raised \$220. That meant that 11 people could get clean water.

She told her mom that she would try harder the next year to raise more money for the charity.

A month later, Rachel was critically injured in a car accident. On July 23, 2011, she was taken off life support. She died soon after.

When the news about Rachel's story and her birthday wish spread, people all around the world began to donate money in her name. Some gave \$9, some \$19, some more. A month later, 30,000 people had given more than \$1.2 million. Because of Rachel Beckwith, 60,000 people in more than 100 villages now have clean water to drink.

In her honor, one village put up a sign that reads, "Rachel's great dream, kindness, and vision of a better world will live with and among us forever." Clearly, one person, even a child, can make a difference.



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- Readworks.org has approximately 3,000 free passages for Grades 1-early high school



**Architecture
The Parthenon**

Architecture, like painting, literature, and other forms of art, reflects the ideals of the people who build it. The Parthenon is the best example of ancient Greek architecture. The structure, created between 447 B.C.E. and 432 B.C.E., tells us a lot about the Greek way of thinking.

In Greece, balance and order were important **principles**¹. The Greeks believed that everything around them happened for a reason. They wanted to find out this reason and discover the order of the world around them. Their buildings were beautiful, but they do not overflow with **frivolity**² or emotion. Instead, Greek buildings define order.

Columns are one **hallmark**³ of classical structure that we associate with Greece and Rome. The Parthenon was built with eight columns on the front and 17 on each side. The building is symmetrical and balanced. Mathematical principles make the design stable. Almost the entire structure is made of marble.

**Architecture
The Duomo**



The Duomo
Florence, Italy

One building, more than any other, marks the arrival of the Renaissance to Europe. Did you know that “naissance” means “birth” in French and that the Renaissance was the rebirth of classical learning in Italy? Art and architecture took off during the Renaissance. Many new **ideas** influenced design. The Duomo, with its grand dome, is a perfect example of new ideas and **innovation**.

Work on the Duomo cathedral, in Florence, Italy, actually started before the Renaissance, in 1296. But the building took 140 years to complete. The **plague**² and many wars prevented construction from continuing on the building as planned. By 1420, the building was almost finished, but there was one serious problem. The plans for the building called for a huge cupola, or dome—bigger than anything built up to that point. No one knew how to build such a dome.

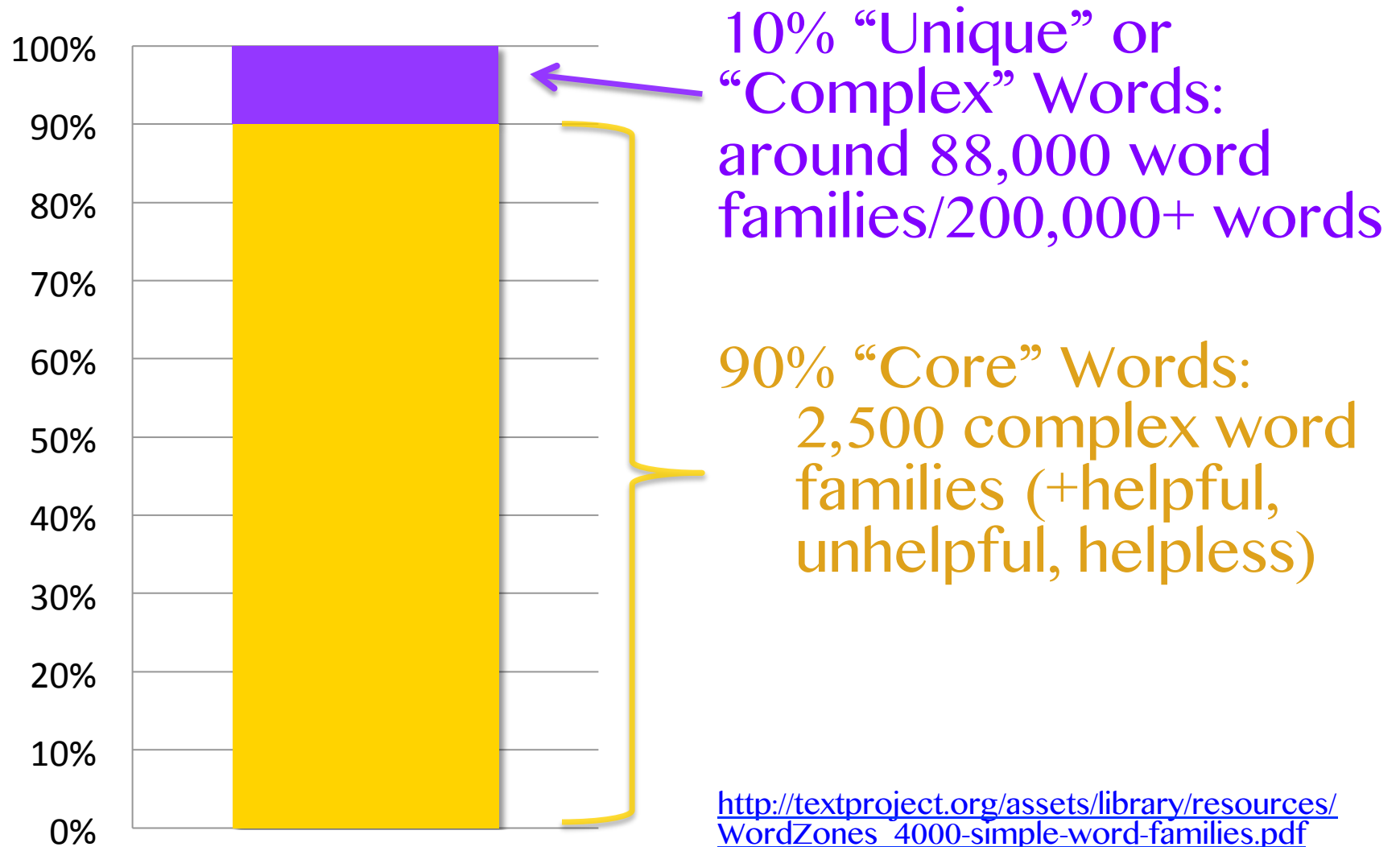


3. Make vocabulary central.



(a) At the core of knowledge is a core vocabulary.

The distribution of words in written English



Examples of the Words in the Core Vocabulary

	words
1st 100	the, by, no, through, must
101-300	long, great, put, last, family
301-1,000	power, north, story, strong, answer
1,001-1,500	valley, imagine, motion, nearby, importance
1,501-2,000	character, responsible, design, presence, trail
2001-2,500	mixture, discovery, civilization, attitude, assume

Putting Two Words Together

volume 3
issue 2



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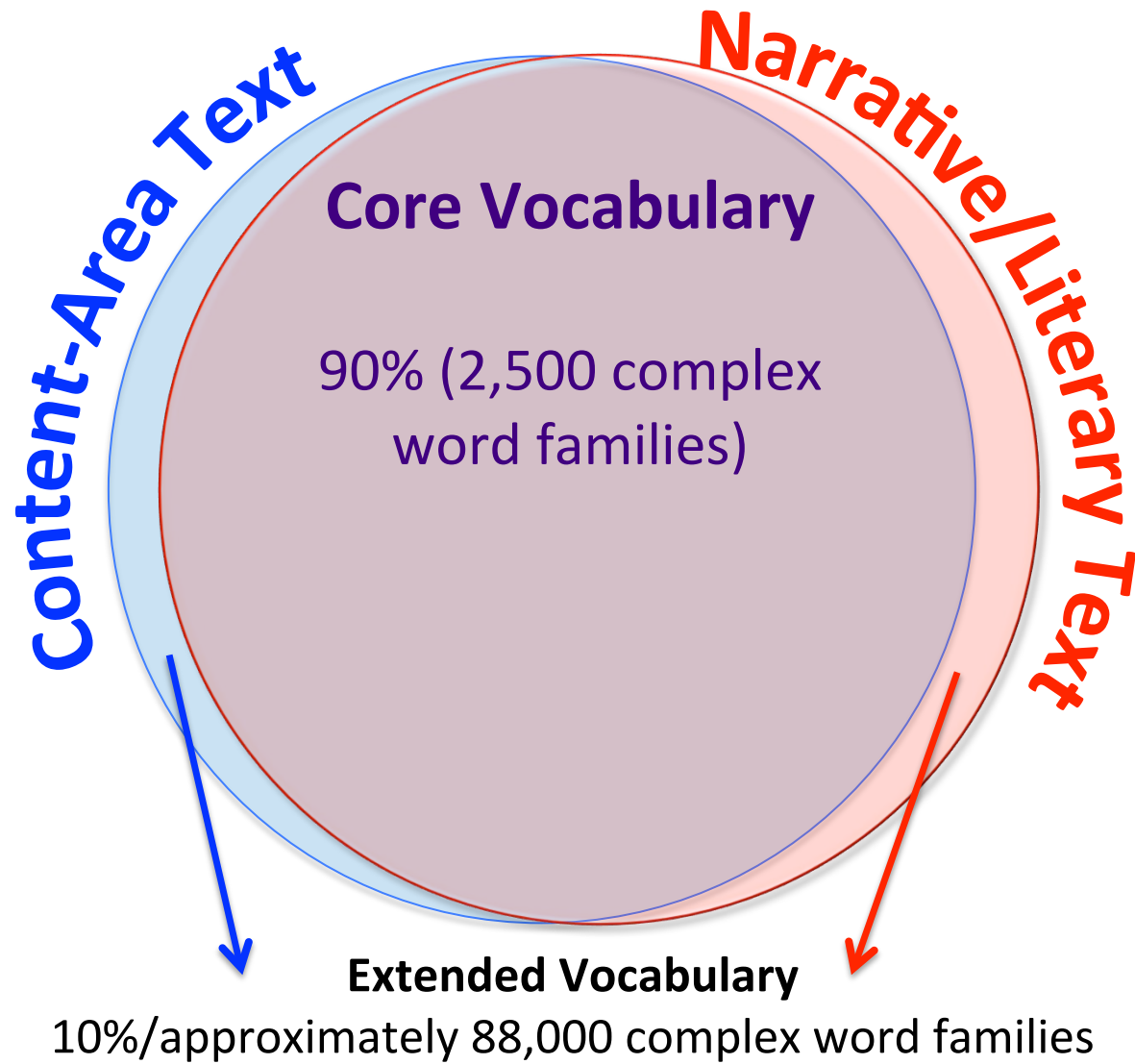
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The month of picking **heartberries** went by. Little **Pinch** jumped off a low branch and made a huge **gash** just over his eye. Blood came pouring down and he seemed both proud of himself and sorry for himself, and he **selfishly hogged** attention for his injury to the point where **Omakayas** could hardly bear it. Mama was constantly **preoccupied** with him. Of course, that left **Neewo** more and more to Omakayas's hands, and she didn't mind that.

Embryological studies show that each **batch** of four is the result of a single **fertilized** egg, which divides twice. Each of the four resulting cells develops into a **miniature armadillo** which is born in early spring some six months after the adults have mated. All members of a young brood are of the same sex. Young **armadillos** have their shell covering complete, but it remains soft until they become adults, thus allowing for growth.

Even with eyes protected by the green spectacles, Dorothy and her friends were at first dazzled by the brilliancy of the wonderful City. The streets were lined with beautiful houses all built of green marble and studded everywhere with sparkling emeralds. They walked over a pavement of the same green marble, and where the blocks were joined together were rows of emeralds, set closely, and glittering in the brightness of the sun.

(b) Networks
in narratives
are synonyms
related to
story
elements.

Story Word	Other Possibilities
dazzled	hypnotized awed
brilliancy	effulgence luminosity
glittering	shimmering radiance

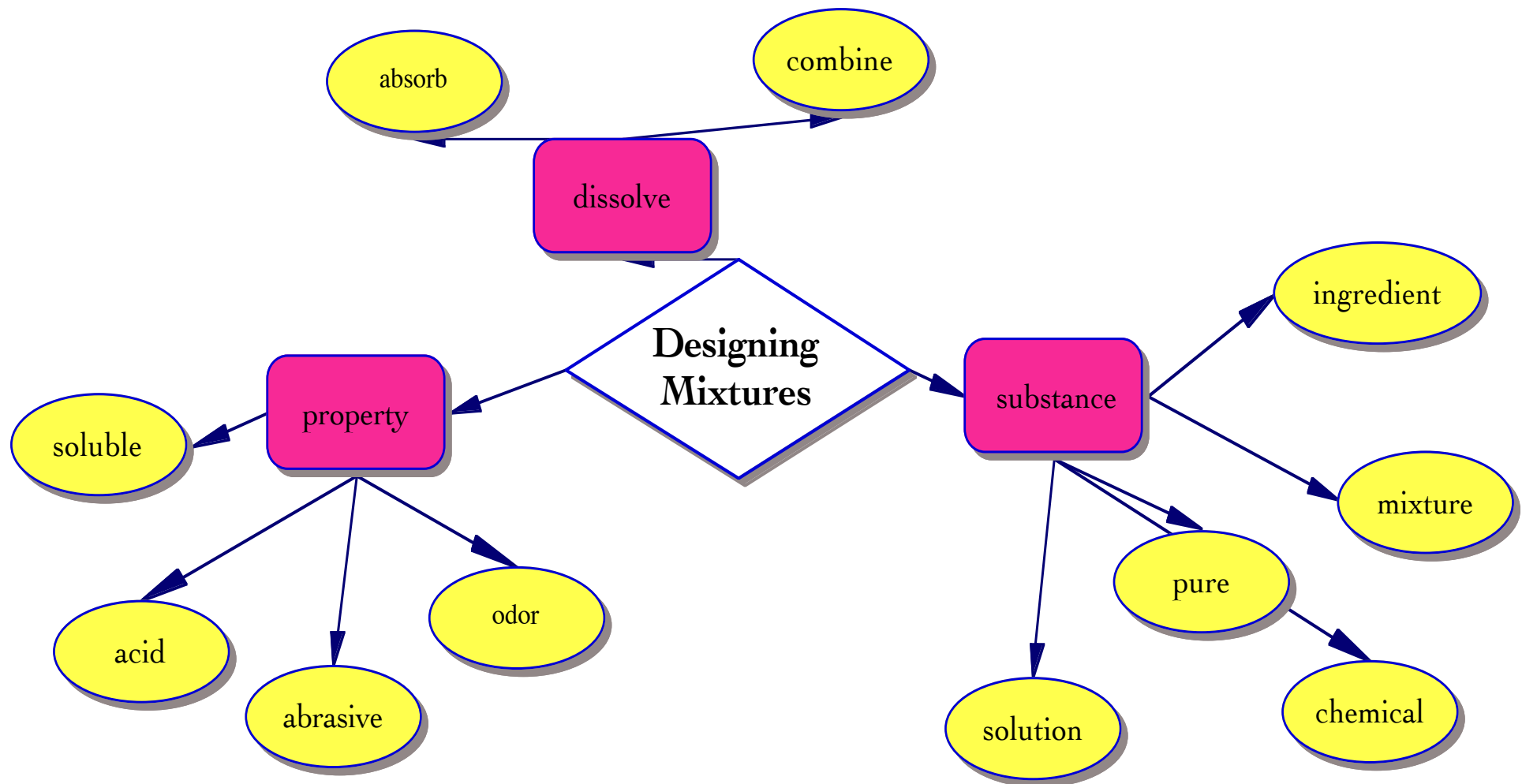


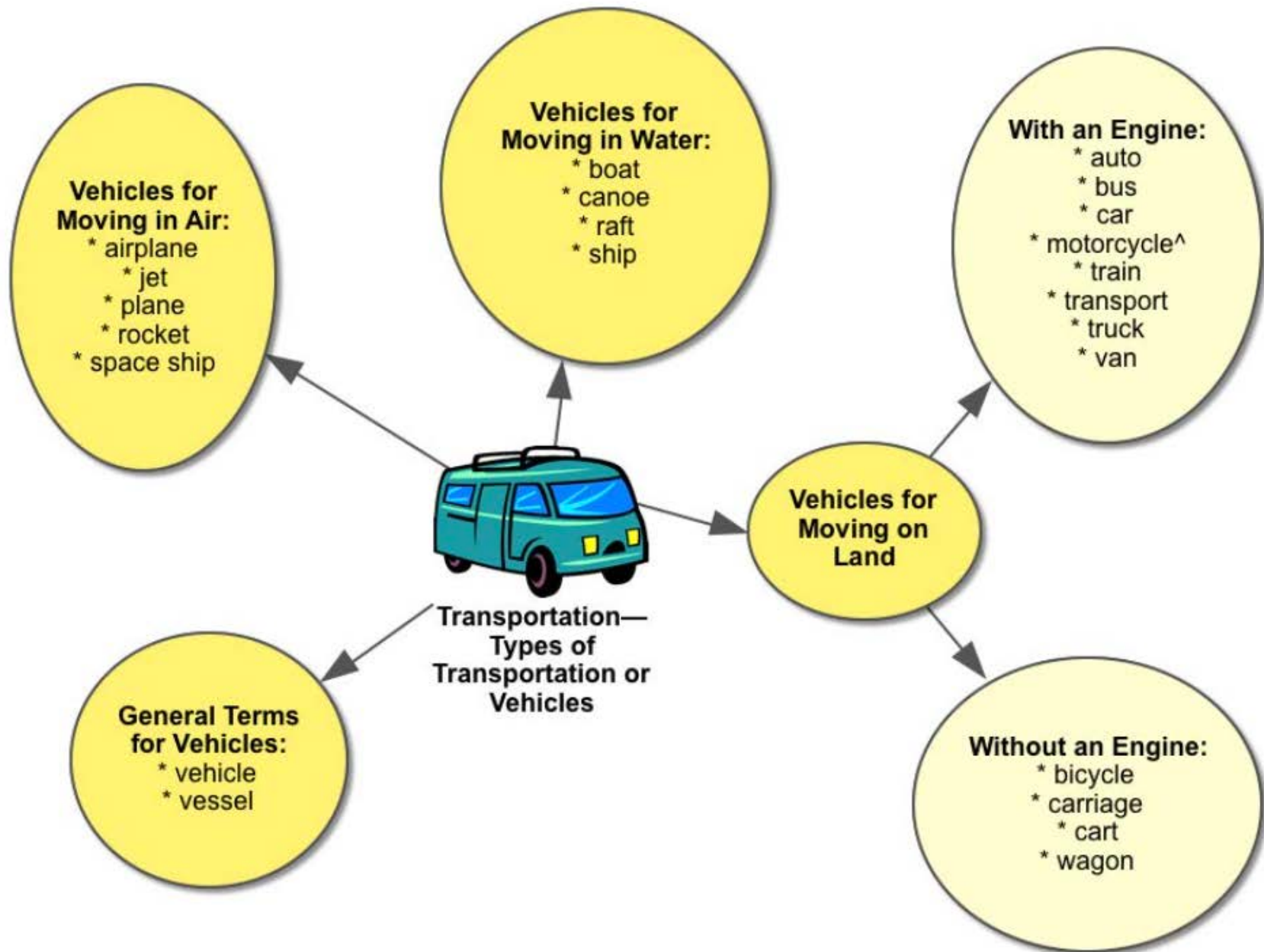
Synonym Networks in Narrative Texts

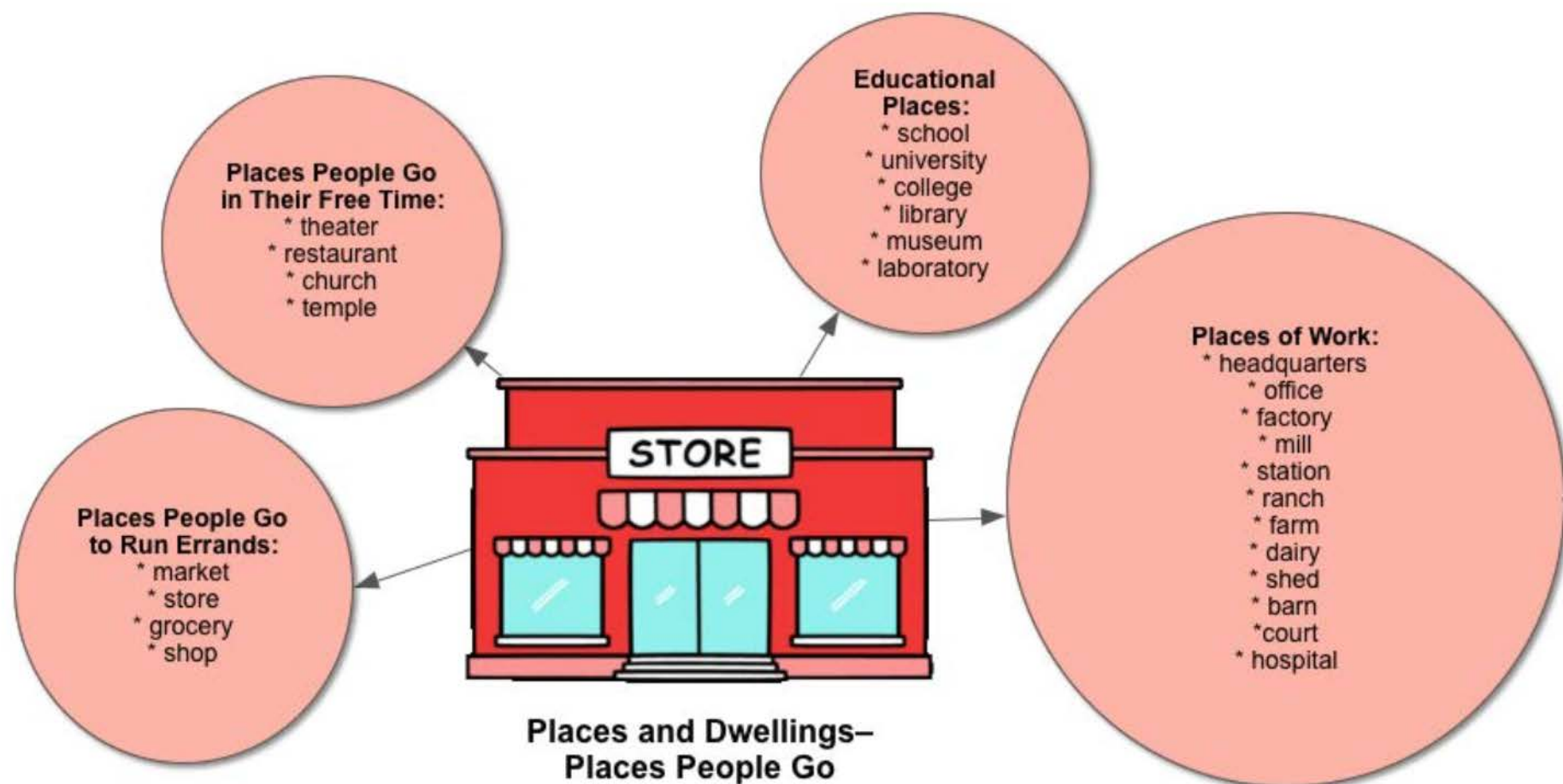
Prolific Groups of Synonyms

Communication /Internal Processes (verbs)	Emotions (adjectives)	Movement (verbs)	Traits (adjectives)
think	glad	go	funny
argue	sad	send	smart
observe	mad	start	brave
guess	selfish	stop	selfish
say	fear	stay	shy

(c) Rare words in informational texts belong to topical networks.

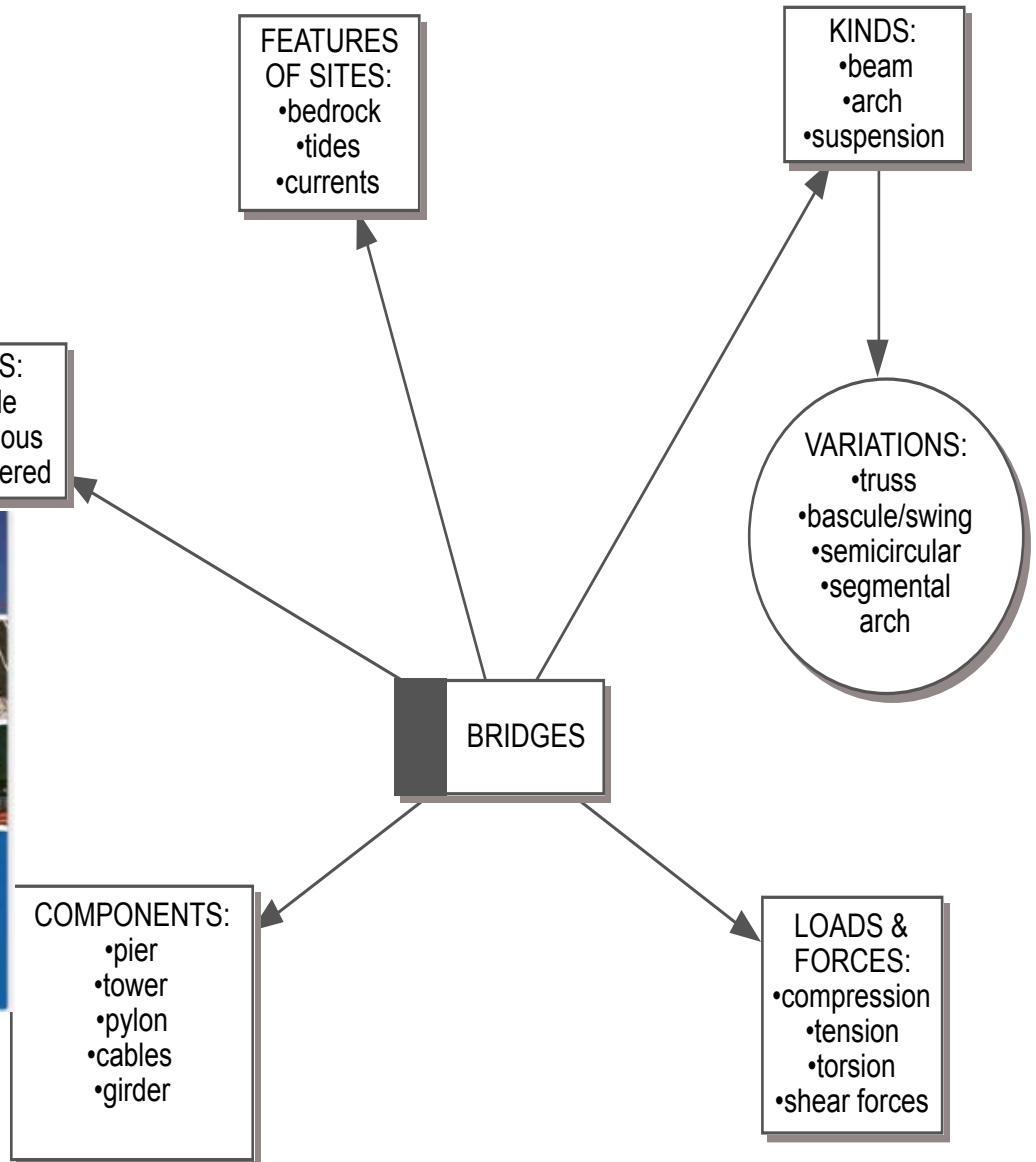
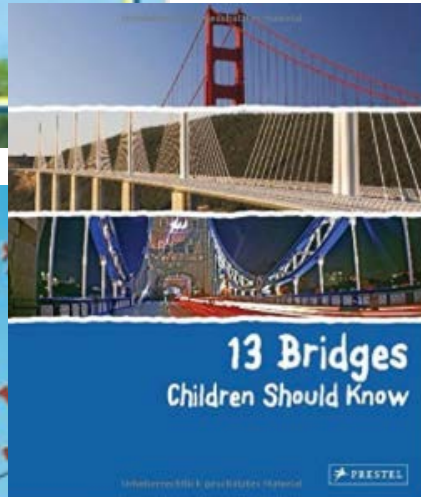
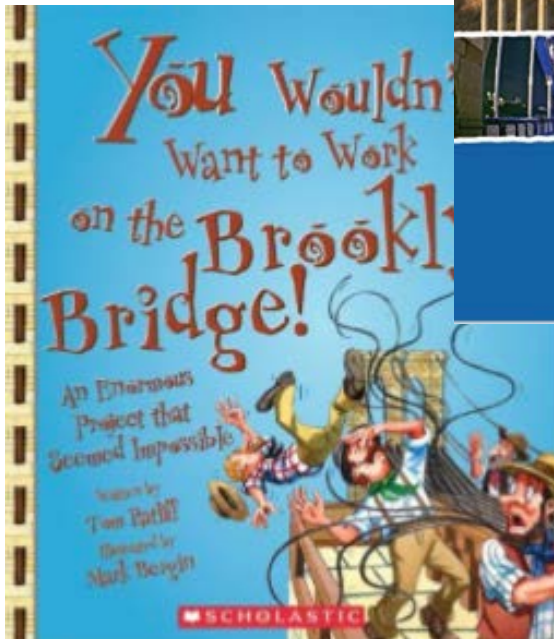
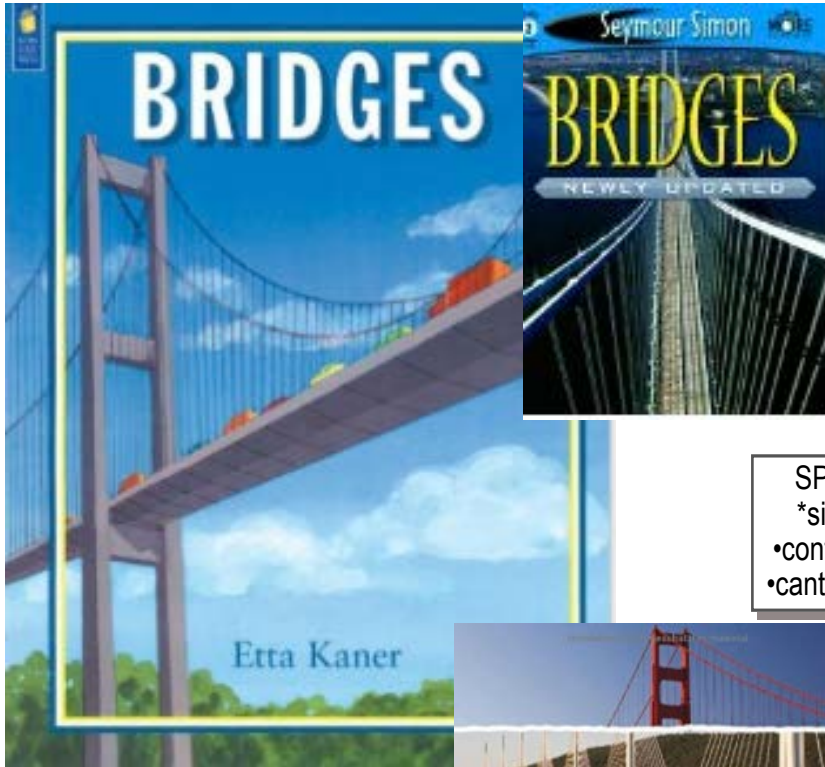


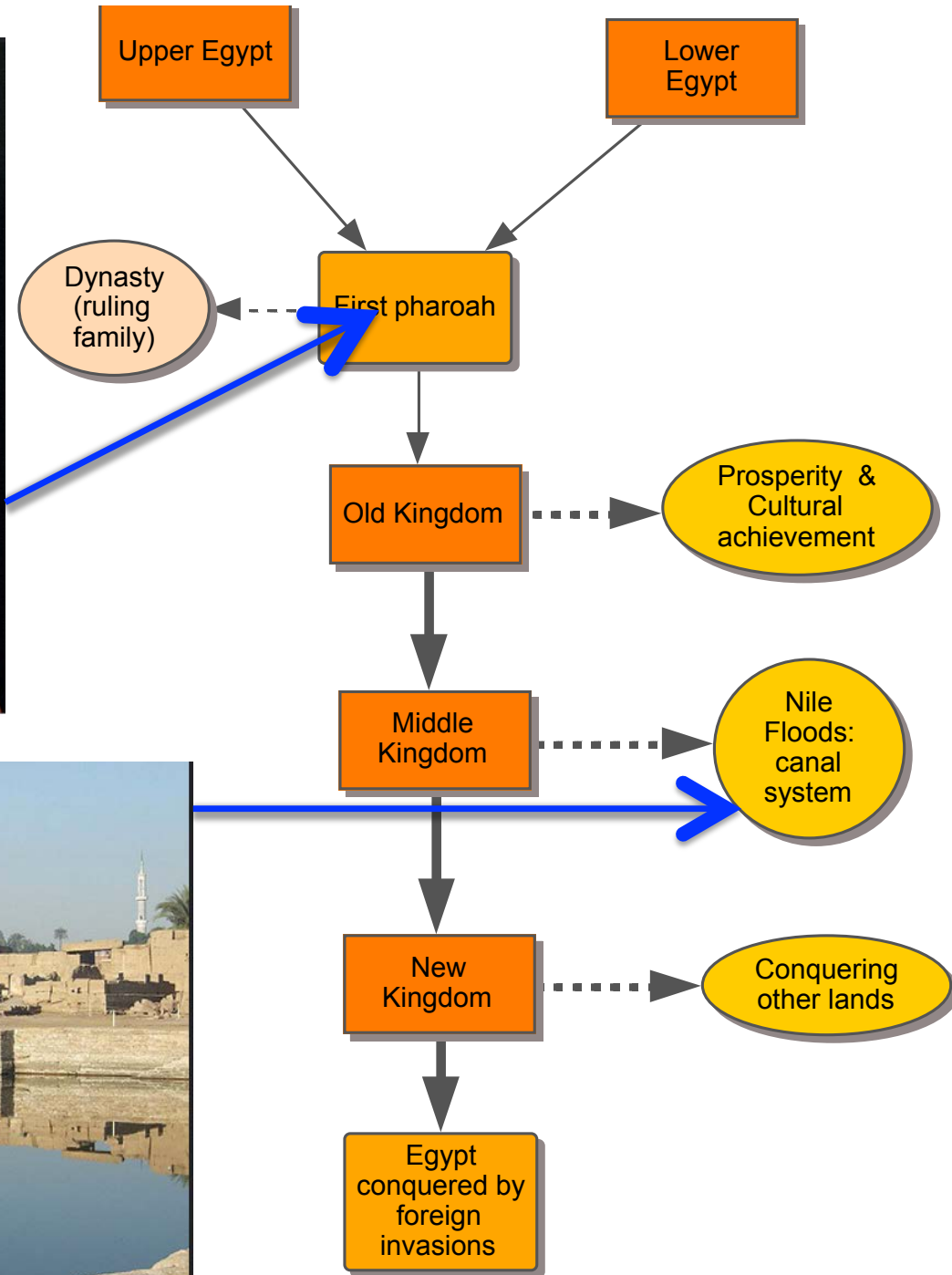
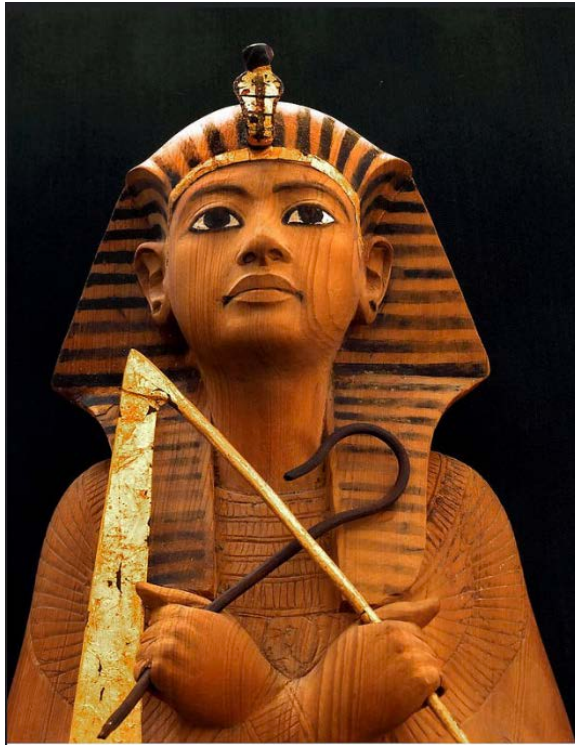


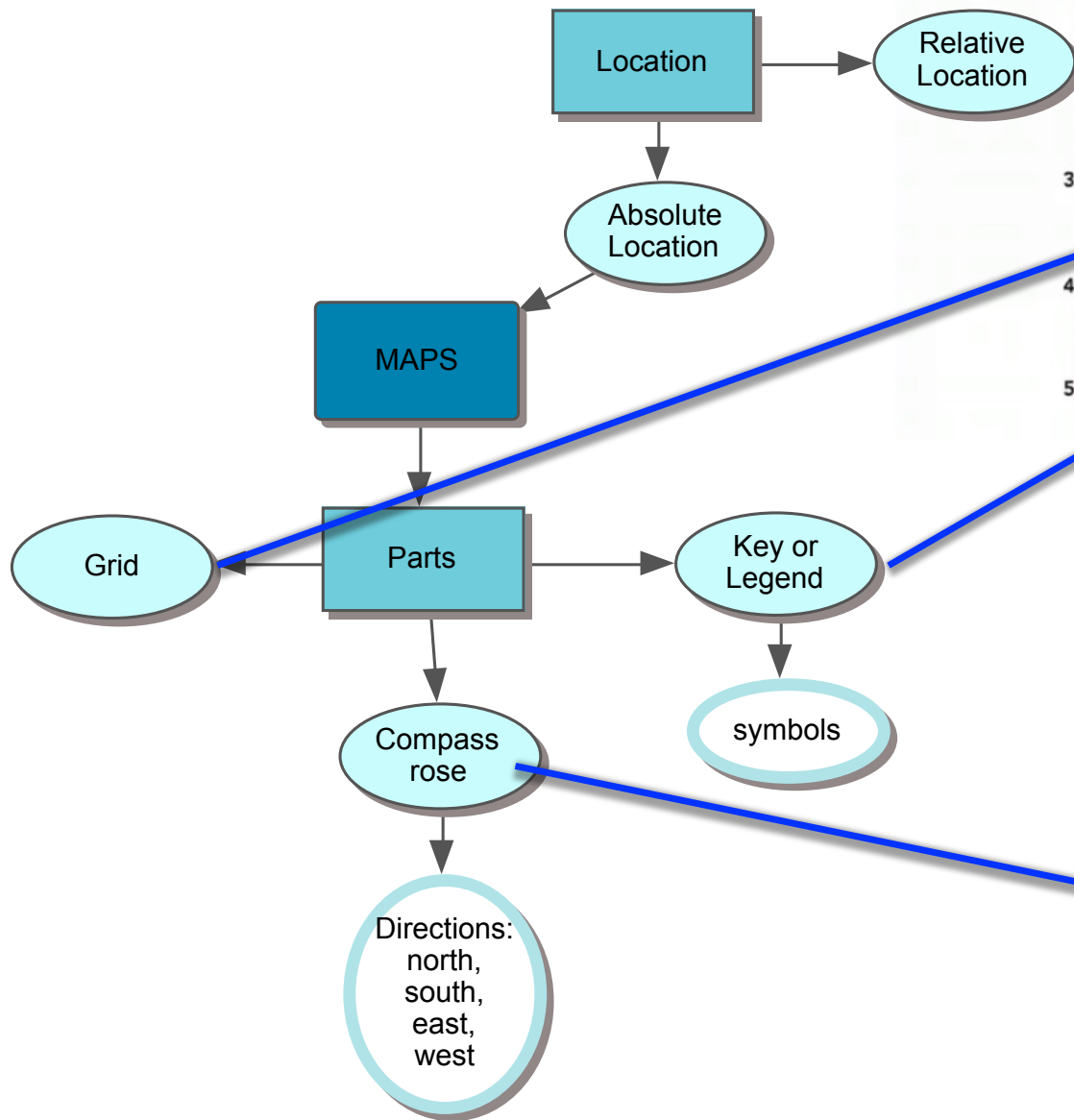


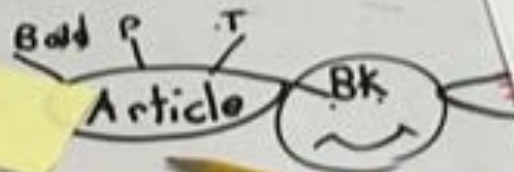


4. Organize and recognize knowledge









Bats



Bats



Bats

There are more than 1,000 kinds of bats. Like birds, bats have wings and can fly. However, bats are not birds. Bats have fur, not feathers. Also, baby bats drink milk from their mothers. They don't eat worms or seeds.

Bats have thin, light bones that help them fly. However, because their bones are thin and light, most bats cannot walk on land. Only vampire bats have legs that are strong enough to let them walk on land. In fact, vampire bats walk on their legs and their wings. Most bats have sharp claws that they use to grab onto a tree or a cave so they can hang upside down to rest. When bats rest, they look small. Bats look much bigger when they stretch their wings. Their wingspan, or the distance between the tip of one wing to the tip of the other, can be as much as five feet. That's probably taller than you are. Some bats, though, have wingspans that are only as big as your hand.

Most bats rest during the day and fly at night. Many

bats eat bugs. Some eat up to 1,000 bugs in one hour, or 10 bugs in one minute. Other bats eat fruit. Vampire bats feed on small amounts of blood from animals like pigs and birds.

Many bats have noses that tell how they look. Dog-faced bats look like dogs. Flying foxes, which are bats, look like foxes.

Other bats have noses that tell what they do. Finding bats use their long legs and sharp claws to grab bats from the water. Tent-making bats build tents around themselves with leaves.

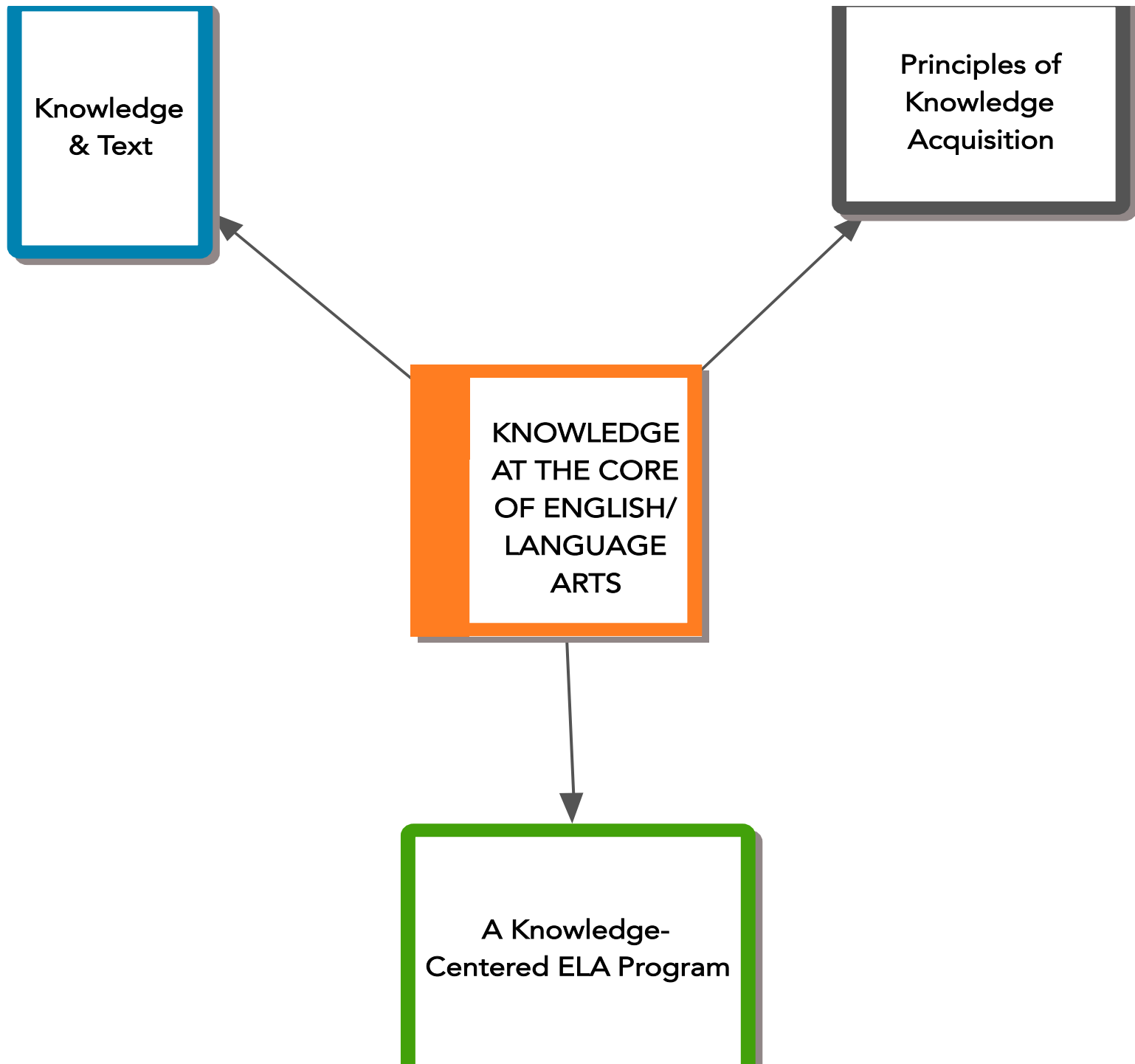
Bats cannot see well, but they can hear well. Bats make a high sound as they fly. The sound is so high that most people cannot hear it. These waves of sound bounce off walls, trees, and insects. They keep bats from flying into things. They also help bats find food and stay safe.



Bats

have their mouths. They don't have their mouths. They don't have their mouths. However, because their bones are so strong, bats can walk on their feet. Vampire bats walk on their feet. Most bats have sharp claws that they use to grab onto a tree or a cave so they can hang upside down to rest. When bats rest, they look small. Bats look much bigger when they stretch their wings. Their wingspan, or the distance between the tip of one wing to the tip of the other, can be as much as five feet. That's probably taller than you are. Some bats, though, have wingspans that are only as big as your hand.

Most bats rest during the day and fly at night. Many





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