

# Vocabulary: Words make a comeback in reading pedagogy

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# Survey

- Elementary?
- Secondary?
- College?
- What's the difference

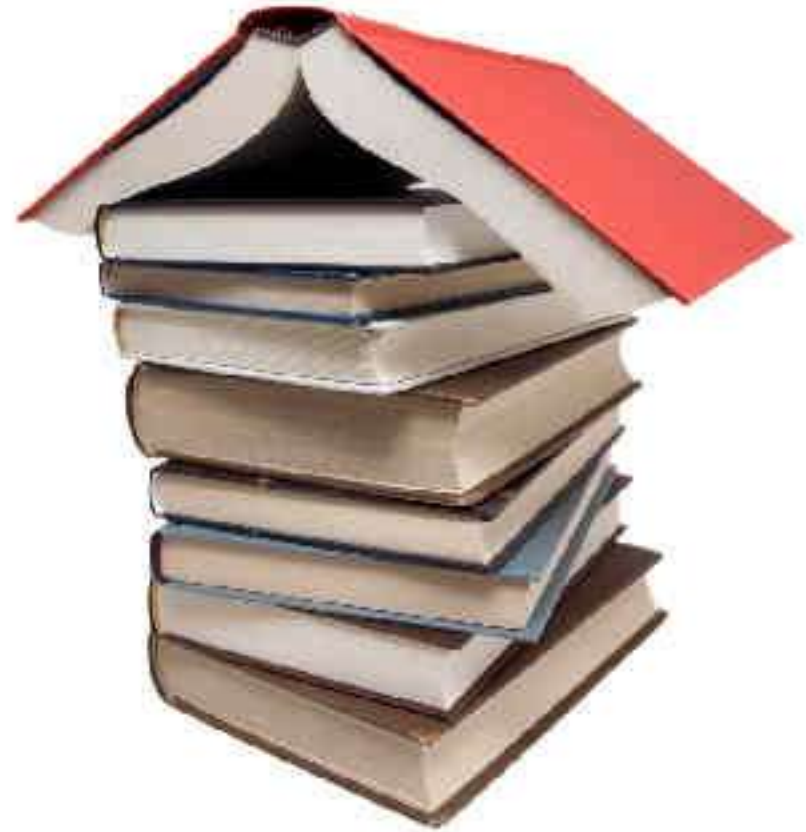
# Elementary Teachers Love

- Their kids



# Secondary Teachers Love

- Their subjects



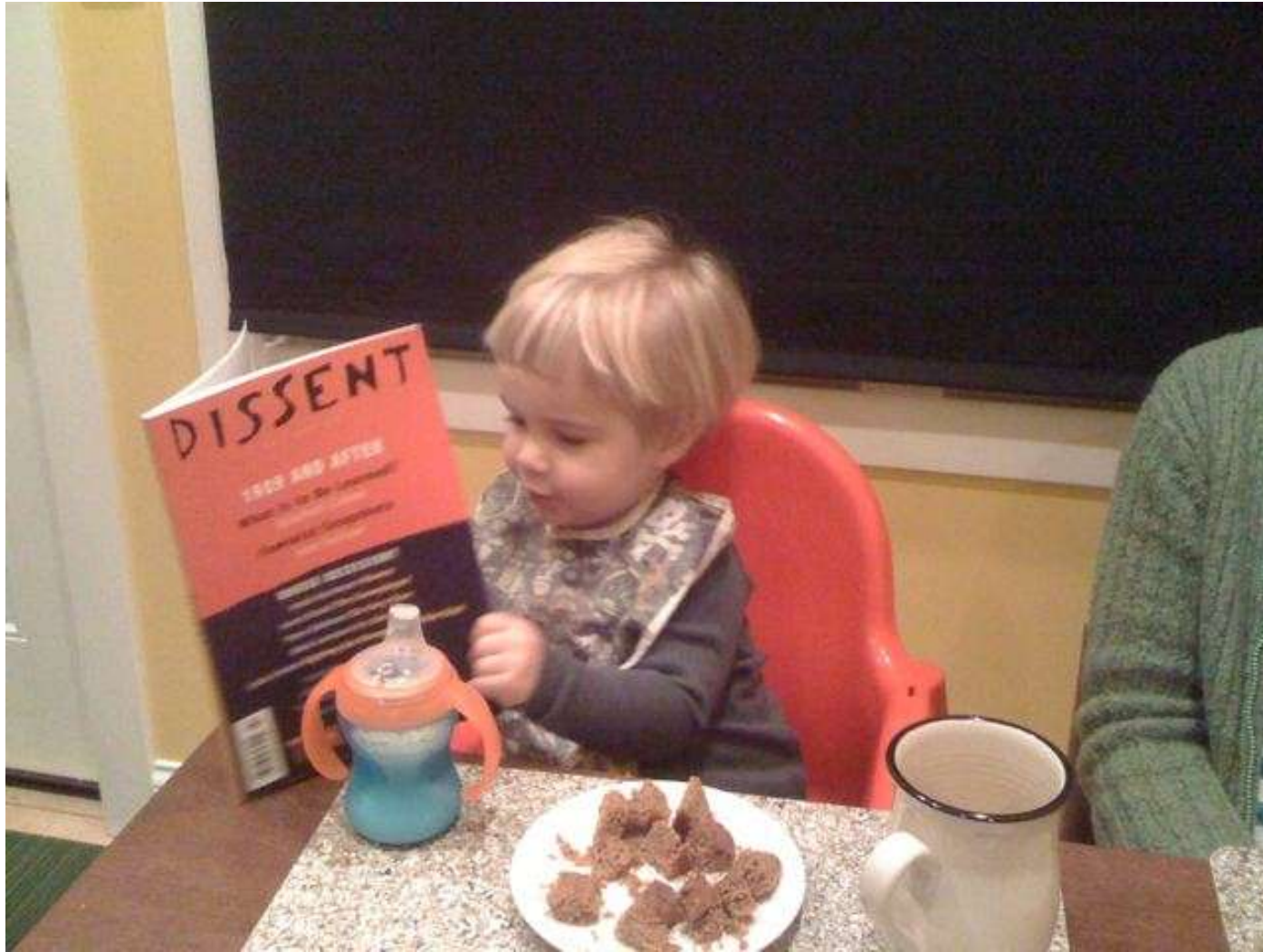
# College Teachers Love

- Themselves



# Why Vocabulary is so important

- In vocabulary instruction, three things come together:
  - Pronunciation (phonology)
  - Meaning (semantics)
  - Conceptual understanding (world knowledge)



# The Rationale: Why should we teach vocabulary

- The research: consistent effects on both growth in vocabulary knowledge and comprehension when vocabulary is taught systematically
- The theory: Words are labels for knowledge. As our knowledge grows, so does our vocabulary for codifying, understanding, and expressing that knowledge--most likely a reciprocal relationship
  - Vocabulary is both cause and consequence of comprehension
  - BUT
  - Knowledge is also both cause and consequence of comprehension

# The Research: A little deeper

- National Reading Panel report
  - Vocabulary impacts comprehension
  - Vocabulary is learned incidentally during reading and listening to books
    - Repeated exposure is key--especially in authentic contexts of use
  - Pre- reading instruction has a role in improving comprehension
  - Computerized programs even work
- Beck et al: Post-reading instruction is also helpful

# Goals in vocabulary curriculum

- Breadth
- Depth
- Independence

# Goal #1: Increasing Breadth

- Increasing breadth
  - Know more words of all sorts
  - Know more words for the same idea
    - (the thesaurus): pretty, beautiful, stunning, ravishing
    - This is the point of Beck et al's Tier 2
    - The stuff of literary text: writers look for just the right word with just the right nuance for for just the right situation in the story
    - A disposition for uniqueness

# Goal #2: Increasing Depth

- Know more about any given word
  - Beck: awareness--> acquaintanceship--> ownership
  - Baumann: association-->comprehension-->generation
- Increased precision: A gendarme names a kind of
  - person->
  - public official->
  - Police officer->
  - French police officer
- Know more ideas for the same word (polysemy: multiple meanings)
  - Run a race
  - Run in your stocking
  - Run a machine
  - Score a run
  - Run for office

# More on Goal #2: Depth

- Know that those synonyms (different words for the same idea) you acquired in Goal 1 are never quite synonymous
- Any two words that are synonymous at one level of analysis are different at another level of analysis
  - Big, large, enormous, and gigantic denote size but connote different facets of size
  - Yes: My, what a healthy big baby!
  - No: My. what a healthy enormous baby
  - Would you rather be described as pretty, gorgeous, handsome, or stunning

# Goal #3: Independence: figuring it out on your own

- Using information around words
- Using information inside words
- Using world knowledge in the form of schemata

# An aside: New labels or new ideas?

- Old wine/new bottles: The RARE words in literary texts tend to emphasize new, more sophisticated, and more precise labels for partially known ideas (just the right nuance)
  - *Misanthrope* for bad guy, *discomfited* for uneasy, *stunning* for beautiful, *supercilious* for arrogant
- New wine/new bottles: Most RARE words in informational texts tend to be conceptually central to the selection AND often represent new ideas as well as new labels.
  - Photosynthesis, chlorophyll,
- New wine/old bottles: Some RARE concepts in informational texts tend to be secondary senses of common words
  - Prime, force (a different problem)
- Old wine/old bottles: Repetition of common words with common meanings

# A fundamental distinction between narrative and expository

- In a story, if you have a rare word, it is because it is exactly the precise word to convey a particular nuance
  - discomfited, misanthrope, stunning, supercilious
- In an informational piece, if you have a rare word, it may well be the point of the piece, and is likely to be explained, supported, and repeated
  - photosynthesis, xylem, and chlorophyll

# The parts that teachers can impact

- Reading that kids do
  - On each reading, you know 10-15% more about words than you did before
- Reading aloud
- Conversations they have about new ideas/words
- Directed inquiry into new domains (usually in thematic units or in content area instruction)
- Intentional instruction for new words/ideas
  - Definitional
  - Contextual
  - Conceptual
- Teaching word learning strategies—
  - context
  - morphology

# Intentional Instruction

# Definitional

- Look up words in dictionary or glossary
- Write down a definition and/or use in a sentence
- Generate your own and check with the dictionary
- General concern: tends to reinforce what kids already know; doesn't help them figure out where things "fit."

# Definitional that does work

- Features of definition
  - What category does it belong to?
  - What features or characteristics does it have?
  - What are some examples of it?
  - What else is it like
- Note (this last activity borders on conceptual approach).
- Reading on line has changed the role that definitions play

# Definitional

- Features of definition: Rottweiler
  - What category does it belong to? Dog, Canine, Mammal
  - What features or characteristics does it have? Fur, Tail, 4 legs, height
  - What are some examples of it? Toby, the one down the street.
  - What else is it like? Weimaraner?, Other hounds? Doberman
- Works because it emphasizes systematic relations with other words

# Morphological analysis

- Interesting work going on
- Hard to imagine that it does not matter
- Tricky business, though
- Why emphasize it:
  - From Grade 3 on, 60% of the words that students encounter in their texts are derivable from morphological analysis

# Morphological emphasis

- At a morphological level, English is much more predictable in every way than at a grapho-phonemic level
- Word families based upon roots
- Inventive activities

# Words of the Future

Trans	Helio	phon	ic
Tele	Luno	graph	ology
Multi	Stella	trop	ism

Transheliography

Telestellaphonic

Multilunotropism

# Words of the present that were once words of the future

- telescope
- microscope
- television
- radioactive
- automobile
- heliotropism

- telescopist
- microscopist

- oscilloscope
- oscilloscopist
- o scill os co pist
- ah sil OS cuh pist

# A cautionary tale: What counts as a word?

- Words or word families
  - Extend? Sure
  - Affixes: Extension, extendable
  - Inflections: Extends, extended, extending
- Levels of transfer among words in a family (Nagy and Anderson): some are more productive than others
  - Level 1: transparent (they clearly belong to the same family: various-vary
  - Level 3: stretch: (some metaphorical help) collarbone-collar; visualize-visual
  - Level 5: accidental: (not much help to know the family: need lots of conceptual support to get from a to b) prefix-fix; peppermint-pepper
- Teach flexible strategies (get you part of the way home—
  - *inspector*: someone who looks inside).
  - Prospector: someone who looks ahead

# Contextual

- Try to use words in sentences.
- Find sentences in a selection or a chapter in which a word is used, try to come up with a definition.
- Very useful as a “problem solving” strategy because we often encounter new words in context. Modeling is a good start.
- More productive in informational than literary text.
- A good thing to do as a class activity on a second pass.

# Carlisle, 1995

## Incidental word learning (IWL)

- 90% of the approximately 3,000 words students learn each year are learned through incidental encounters in oral and written discourse contexts
- That is, most words are not learned through explicit instruction
- A large percentage of the new words students learn after 3rd grade are derived words with familiar parts (e.g., *dis-trust-ful*)
  - 60% of the unfamiliar words students encounter in texts they read are derived words whose meanings can be figured out by analysis of structure and context

# Independent Word Learning

IWL depends on two inferential processes

- Nagy & Scott (2000): “**Context** and morphology (**word parts**) are the two major sources of information immediately available to a reader who comes across a new word.”
- The two inferential processes work together, often complement one another.

# The Cheyenne People

Men and women wore shirts similar to the women's dresses, but shorter and with longer sleeves. A *breechclout* hung from a belt around the waist. The Cheyennes decorated their clothing and leather goods with *quillwork*. Many designs had special meanings and could be recognized by all their people. It was an honor to belong to the Quillers' Society.

The first step to quillworking is the difficult removal of the sharp quills from the porcupines. They are then dyed, using berries, flower, or minerals. After sun-drying the quills, the quillworker *flattens* them with her teeth so they can be sewn with a bone needle and *sinew* thread.

(from *Quillworker, A Cheyenne Legend*)

# Context “clues” lead to guesses about the meaning of a word

- Common clues are synonyms, antonyms, temporal or spatial relations, categorical or functional roles:
  - For *breechclout*: clothing; “hung from belt” (functional and spatial clues)
  - For *sinew*: a kind of thread (categorical?)
- “Contexts can be generous or parsimonious, helpful or hostile in the amount of assistance they provide the reader or listener.” (Baumann & Kame’enui, 1991)

# Context is tricky

- On the one hand we surely want students be able to use context to unearth the meanings of unknown words.
- On the other hand, context does not always help--a fact about texts that we need to let kids in on.

# You figure it out

- Have you seen a coyote lately? Have you heard one howling in the night or watermelonning in the day?
- The elk lettuces in the snow for grass.
- Once a family bought a house near a persimmon city where coyotes roamed in the neighboring woods.

Note: A different word is replaced in each sentence.

# Answer Key

- yip-yapping
- paws
- mid-sized

# So what to do about “context”

- It is useful to introduce and define words within a context.
- In order to move from awareness to...ownership, students need to encounter a word many times in many contexts
- As a metacognitive strategy for clarifying, students deserve some guidance in how to infer meanings in context (although the research on teaching context clues is pretty anemic)

# Using context as a fix up strategy

- Lots of modeling and group problem-solving when uncommon words are encountered
- Use a cloze or a “placeholder” approach (nonsense word or watermelon)
- Have students substitute an uncommon word for a common word--or vice-versa.
- Use it in conjunction with morphological context and phonics to come up with a word.
  - Better when used in conjunction with other strategies.

When context is used in conjunction  
with other resources



# Conceptual Approaches

- A different kind of context: the context of the head and the world, not the context of the page.
- If the head is like a dresser, you just have to figure out what “drawers” to put new ideas in.
- This is what schema theory during the 1980s was all about (still is all about).
- My metaphor: homunculus in our head

# Conceptual Approaches, cont

- Semantic mapping or webbing
- Semantic feature analysis
- Any sort of categorization activity

# Example Visual Displays

## Semantic Maps



**Uses: just about anything:  
even baskets of facts**

# Vocabulary as conceptual networks

## Vocabulary as labels for our knowledge

decomposers are organisms that live in the soil and breakdown dead organisms

plants are organisms that live in the soil

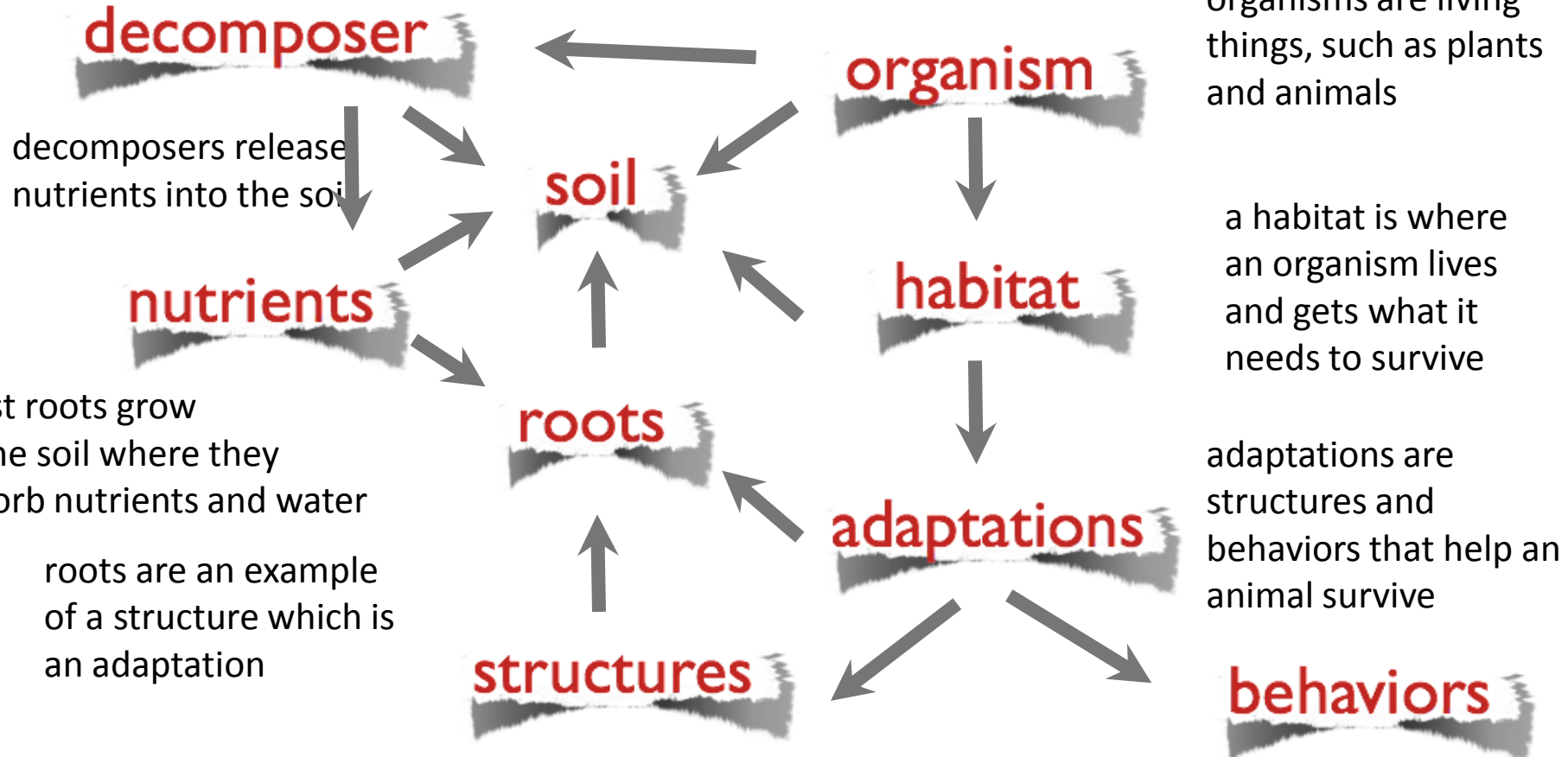
organisms are living things, such as plants and animals

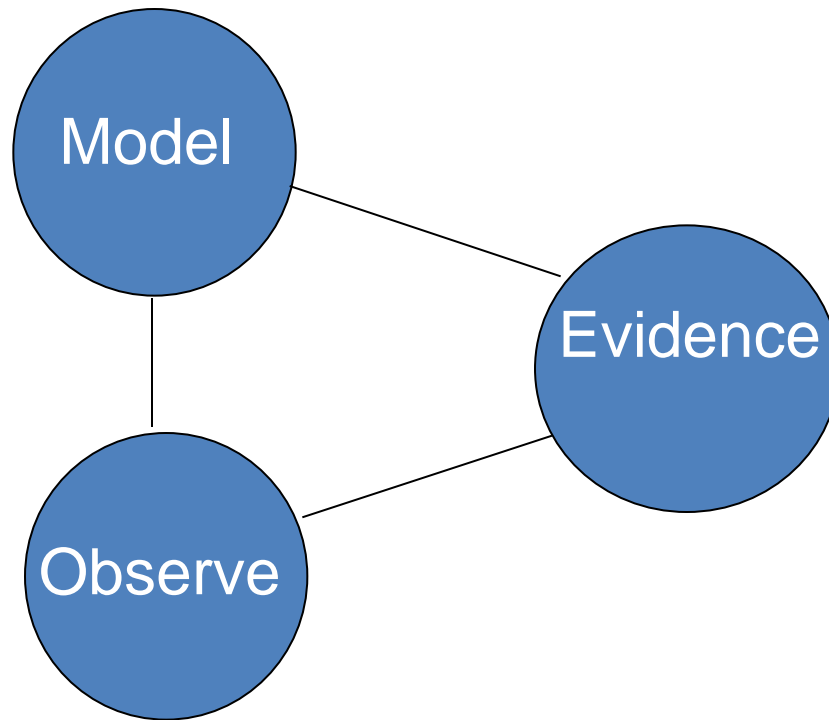
a habitat is where an organism lives and gets what it needs to survive

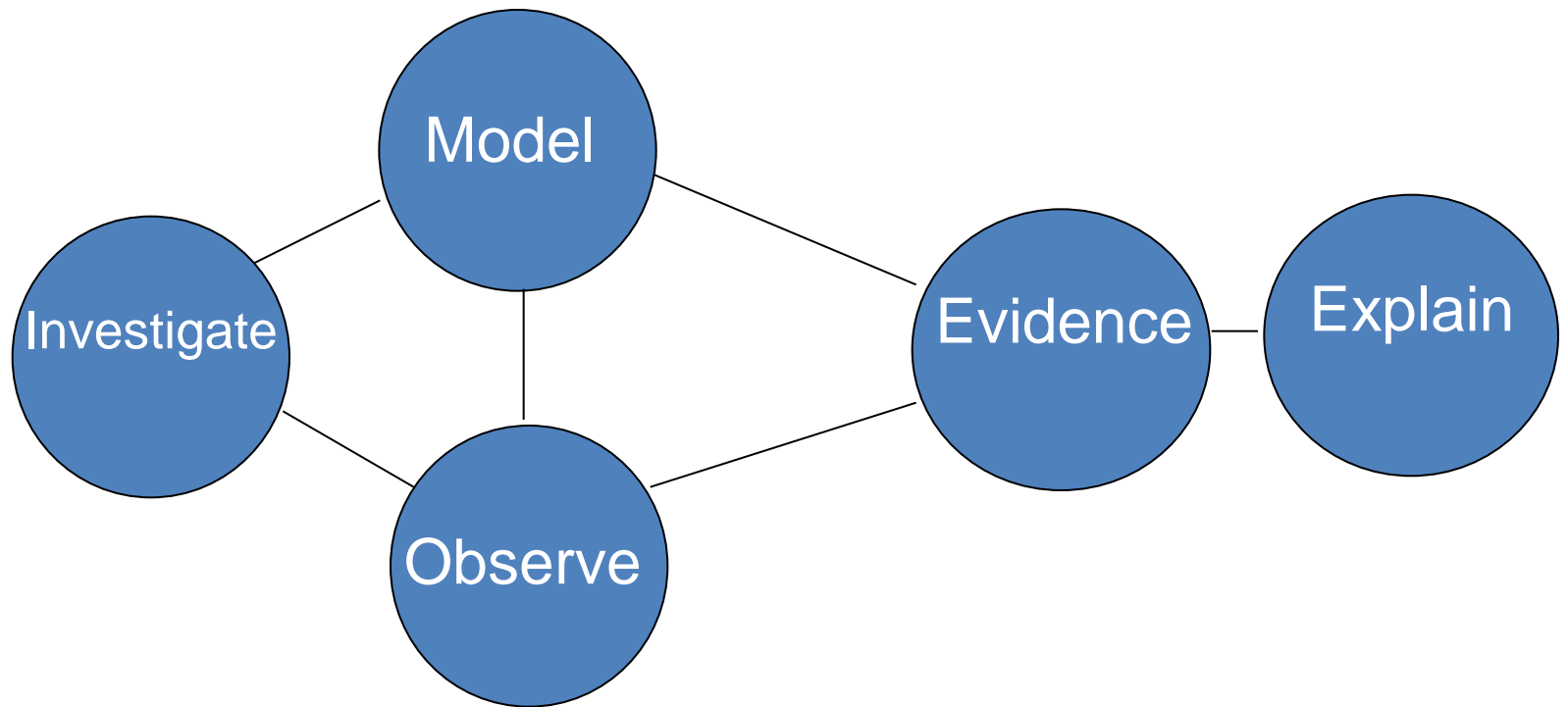
adaptations are structures and behaviors that help an animal survive

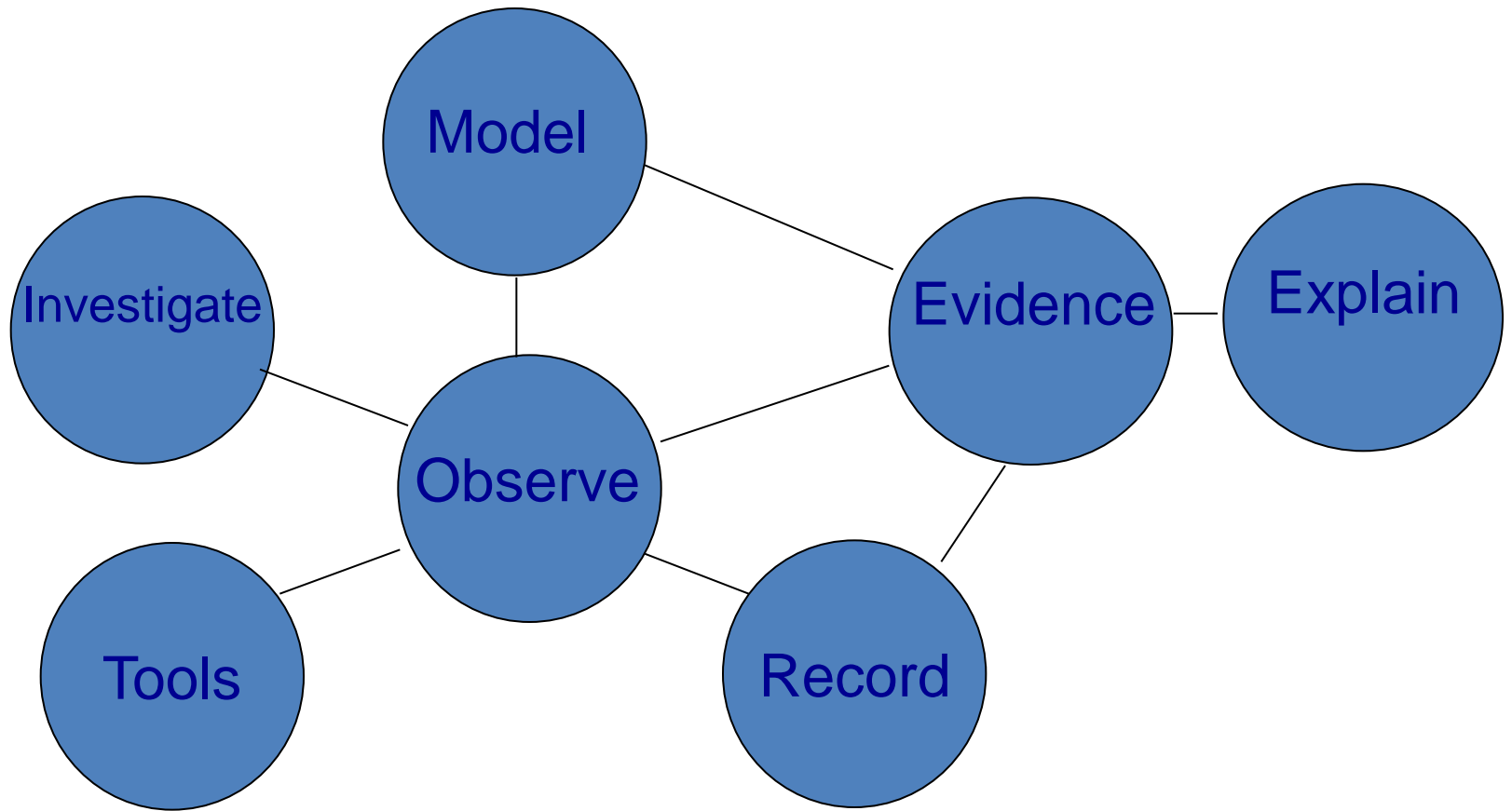
most roots grow in the soil where they absorb nutrients and water

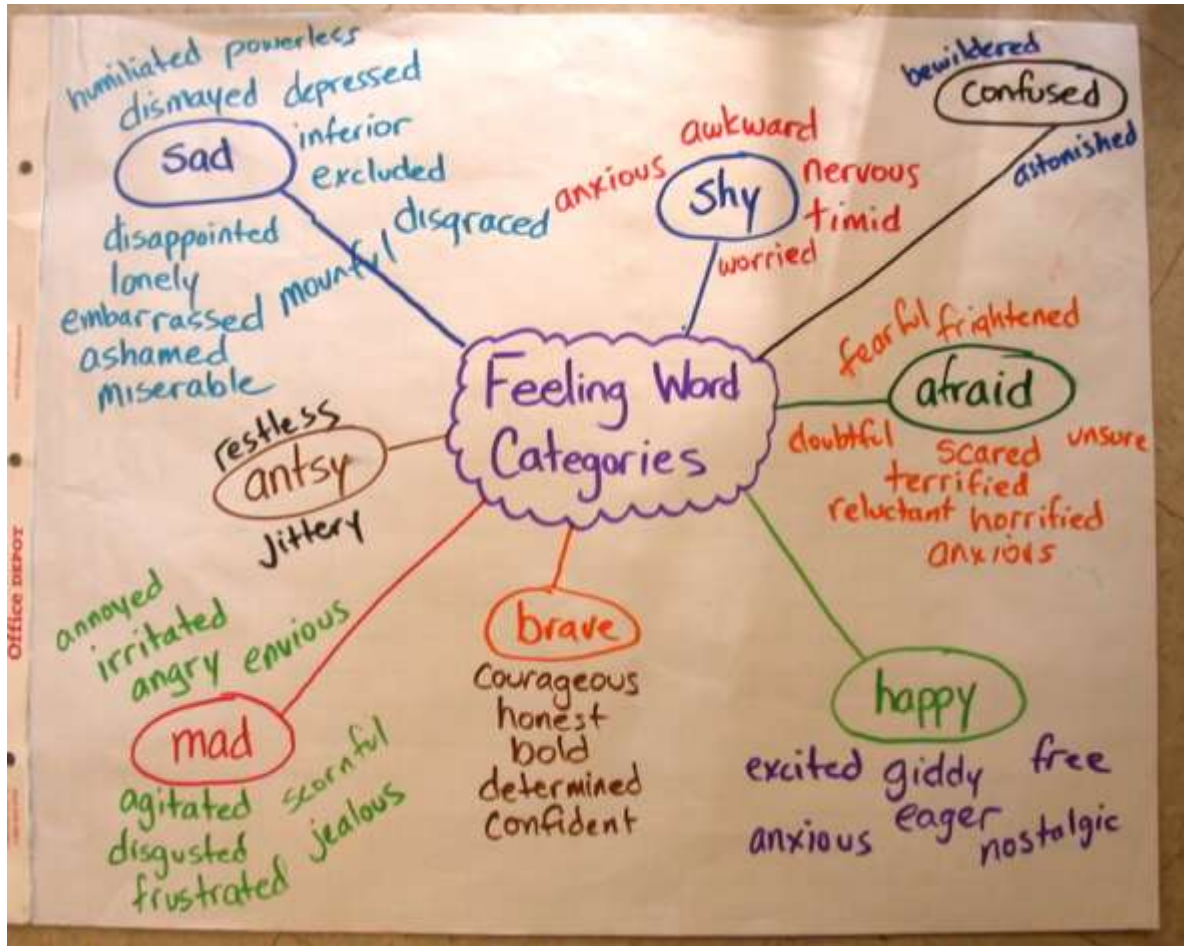
roots are an example of a structure which is an adaptation













# Vehicles

*Cars*      *Skateboards*      *Trucks*      *Bicycles*      *Motorcycles*      *Scooters*      *Buses*

**Motorized**

+   -   +   ?   +   ?   +

**Steering Wheel**

+   -   +   -   -

**Handlebars**

-   -   -   +   +

**Two wheels**

-

**Four wheels**

-

**Passengers?**

+ ?

**Enclosed?**

+ -

# Visual Displays to promote *knowledge* and *vocabulary* acquisition

	Habitat	Food	Communication
Ants	Hill/Nest	Depends...	??
Bees	Hive	Nectar	Dances
Termites	Hill	Woody Material	

- Applications:
- Successive members of a given category:
  - Countries in South America
  - Flightless birds: Ostrich, Emu, Kiwi
  - Ways of walking: trod, saunter, promenade, perambulate

# The impact of reading on other subject matter pedagogy

- The evolution of mathematics story problems during the last 40 years.

# 1960's

- A peasant sells a bag of potatoes for \$10. His costs amount to  $\frac{4}{5}$  of his selling price. What is his profit?

# 1970's (New Math)

- A farmer exchanges a set  $P$  of potatoes with a set  $M$  of money.
- The cardinality of the set  $M$  is equal to \$10 and each element of  $M$  is worth \$1. Draw 10 big dots representing the elements of  $M$ .
- The set  $C$  of production costs is comprised of 2 big dots less than the set  $M$ .
- Represent  $C$  as a subset of  $M$  and give the answer to the question: What is the cardinality of the set of profits?  
(Draw everything in red).

# 1980's

- A farmer sells a bag of potatoes for \$10. His production costs are \$8 and his profit is \$2. Underline the word "potatoes" and discuss with your classmates.

# 1990's

- A kapitalist pigg undjustlee akires \$2 on a sak of patatos. Analiz this tekst and sertch for erors in speling, contens, grandmar and ponctuassion, and than ekspress your vioos regardeng this metid of geting ritch.
- Author unknown

# 2000's

- Dan was a man.
- Dan had a sack.
- The sack was tan.
- The sack had spuds
- The spuds cost 8.
- Dan got 10 for the tan sack of spuds.
- How much can Dan the man have?

# Extended talk about words

- See Beck, McKeown, & Kucan (Bringing Words to Life)
- Splendid: Which of these would be splendid?
  - A dirty sock
  - A sunny day in the park
  - Your own bicycle
  - A rainy day

# Beck et al

- Which of these would “astound” you?
  - a monkey driving a car
  - a homework assignment to do 10 problems in math
  - a magic trick by a friend
  - a clock on the wall

# Beck et al Tiers

- Tier 1: Common, everyday language: boy, good, nice, happy
- Tier 3: The technical stuff of subject matter learning: names of muscles (striated), parts of the plant (xylum)
- Tier 2: Uncommon names for common things: invigorate, astound, vexing

# Beck's claim

- Tier 1 words need little instructional attention (dog, many, come, into)
- Tier 3 words {chlorophyll, photosynthesis, xylum} are best taught in subject matter classes
  - words=>concepts=>knowledge
- Tier 2 words are keys to acquiring the language of literate culture--nuance and sophistication (astound, misanthrope)
- Often better to do the heavy vocabulary instruction after rather than before reading

# My own view about tiers

- Tier 2 construct works better for literary than for informational text
- If there are Tier 2 words in informational text: The sophisticated language of academic discourse

Prediction

Reason

Argument

Evidence

observe

# Mapping Beck onto Wine

- Old wine/new bottles: The RARE words in literary texts tend to emphasize new, more sophisticated, and more precise labels for partially known ideas (just the right nuance) **Tier 2**
  - *Misanthrope* for bad guy, *discomfited* for uneasy, *stunning* for beautiful
- New wine/new bottles: Most RARE words in informational texts tend to be conceptually central to the selection AND often represent new ideas as well as new labels. **Tier 3**
  - Photosynthesis, chlorophyll
- New wine/old bottles: Some RARE concepts in informational texts tend to be secondary senses of common words **Tier 1.5?**
  - Prime, force (a different problem)
- Old wine/old bottles: Common labels for common ideas **Tier 1**
  - Dog, day, friend

# The common element in all of these activities is

- Conversation: the key; the experiences of other students can be as important as those of the teacher
- Move from Beck's awareness to acquaintanceship to ownership
- The overall goal is for any new concept is to help kids figure out
  - What it is like
  - How it is different from what it is like
  - Family resemblances

# Revisiting what we just examined: How to think about recent developments

- The past decade has brought us a lot of alternatives to the conventional wisdom about which words to teach in school reading (and content) curricula
- If it is hopeless to teach all of the new words for each new text, then what would make sense as a criterion (or criteria) for vocabulary focus?

# Just let it happen

- Context, purpose, and activity will take care of vocabulary acquisition without a lot of conscious intention.
- Consistent with Whole Language tradition and a wide reading focus

# Go for utility

- Always teach words with high transfer value
- Most frequent first
  - In general (what we did until early 1970s)
  - What we often do disciplinary contexts (investigate in science)
  - Across disciplinary contexts (evidence, argument, inquire, reason)

**Go for depth.** Pick a few words and really teach them well.

- **Word Generation: Snow**
- *Words like...Evidence, reason, basis*
- The language of argumentation and disciplinary discourse
- Low frequency in everyday language but high frequency in disciplinary registers
- Work intentionally across disciplines

# Depth... Academic sophistication

- Pick words that give kids a leg up on the words of sophisticated conversations:
- B, McK, & K's Tier Two words: Uncommon labels for common ideas
- Promotes nuance and connotative sensitivity
- Breeds semantic or semiotic capital (a richness of meanings)

# Depth/Breadth: Semantic Clustering

- Semantic mapping
- Semantic feature analysis
- Marzano's clusters
- The stuff of subject matter learning
- Tier three words
- Where knowledge and vocabulary become hopelessly and happily confounded

# Depth: Embodied Instruction

- Embed vocabulary acquisition into activity and application
  - Sites: science, art, music: places where activity and embodiment meet the verbal
  - Example: what we try to do in our NSF Seeds of Science-Roots of Reading project
- Lead with inquiry-based science
- Let literacy and vocabulary work in the service of acquiring knowledge and inquiry in science
- Read it-write it-talk it-**do it**
- The doing is critical: binds the verbal and written label to the activity—somatic (tactile and kinesthetic) traces as well as semantic (meaning) and episodic (experience) traces

# Vocabulary as conceptual networks

## Vocabulary as labels for our knowledge

decomposers are organisms that live in the soil and breakdown dead organisms

plants are organisms that live in the soil

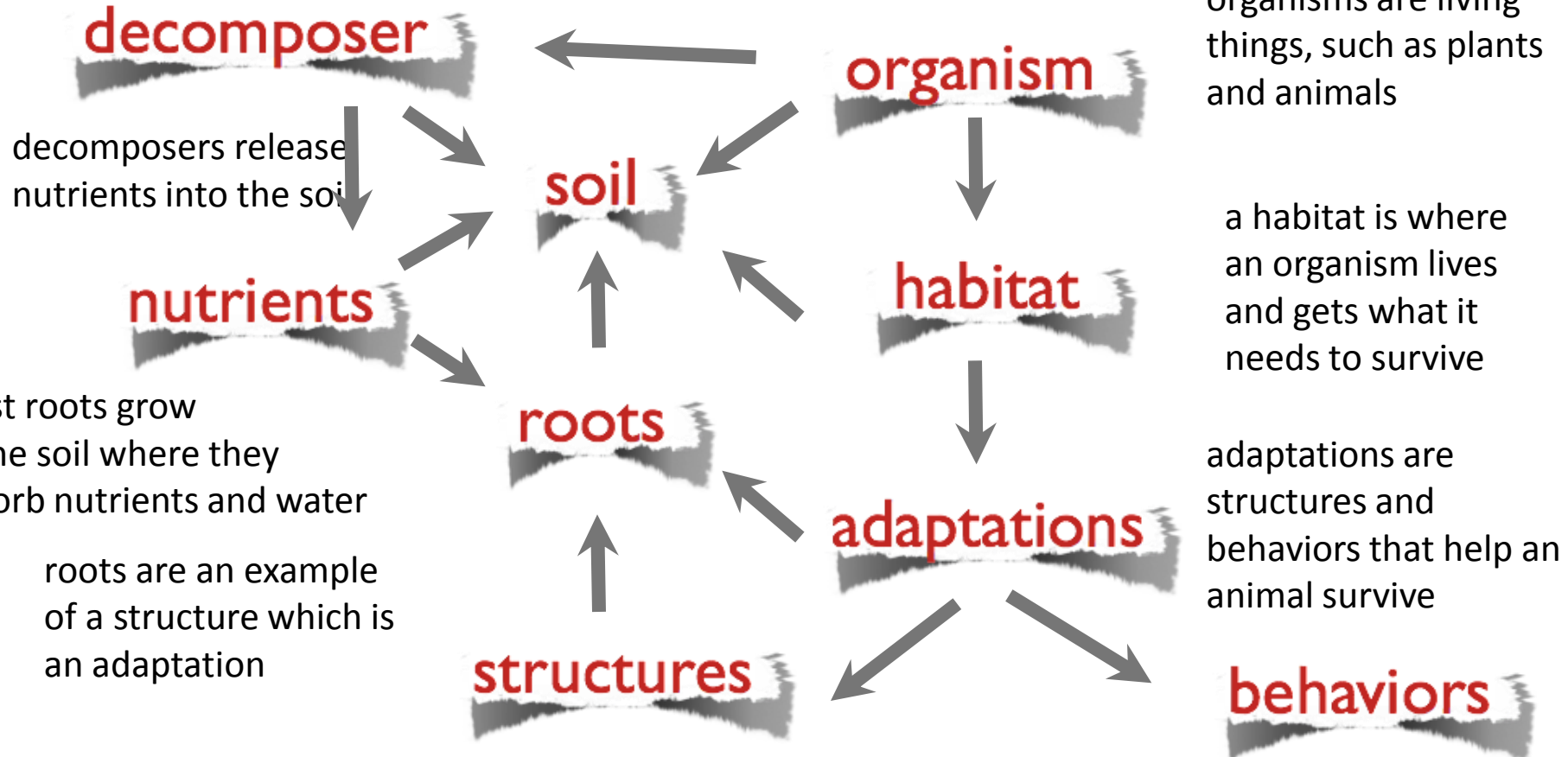
organisms are living things, such as plants and animals

a habitat is where an organism lives and gets what it needs to survive

adaptations are structures and behaviors that help an animal survive

most roots grow in the soil where they absorb nutrients and water

roots are an example of a structure which is an adaptation



# Depth/Breadth: Morphological Clustering

- Carlisle and others
- Cluster together words in morphological families
- Unpack the infrastructure of words
- Deal with the limits (like phonics rules)
  - They get you part of the way home
  - Pronunciation is almost 100% predictable at the morphological level
    - Laugh-laughable
    - Thought-thoughtfulness
    - BUT
    - Democrat-democracy
    - Bomb-bombadier
    - Laughed, nabbed, rated

# Depth/Breadth/Independence: Combine all of these perspectives ...

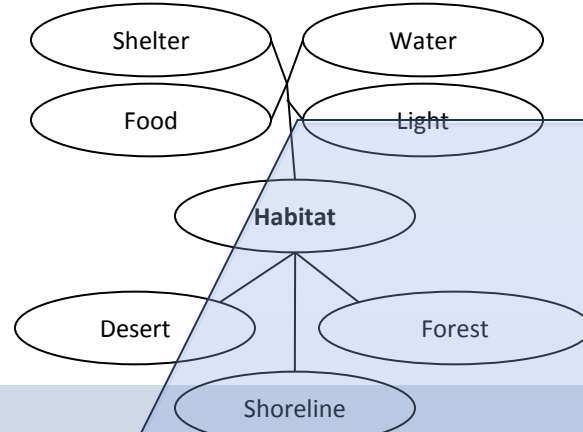
- Don't make choices between the contextual, semantic, morphological, and frequency criteria.
- Find a way to teach words worth teaching in all of those facets.

# A practical guide for vocabulary: what I would do...

- Introduce conceptually critical words before reading, but in context and semantic elaboration.
  - Only the meaning in the selection
- Do as much point of contact (ala Beck) teaching as needed
  - State the meaning and go on (not a federal case)
- Post reading
  - Tier 2 explorations
  - Modeling of how to infer word meanings from context

# Words are Concepts

## Habitat



If we wish to maintain a terrarium in our classrooms, we should establish conditions that are consistent with the organisms' natural habitats.

Recognition

D

Morphology

Relationships

Context

Application

Synthesis

Habitat is the place where organisms live, and the light, and shelter that it needs to survive

Habit  
Habituate

A habitat has everything an animal needs to survive. The grassland habitat is windy with few trees.

All living things exist within habitats and have adaptations that allow them to survive in those habitats. No one habitat can support all living habitats.

