

# National Association of Special Education Teachers (NASET)

## THE PRACTICAL TEACHER

*This Month's Topic:*

### Brain Efficient Word Lists for Word Sorts, Puzzles, and More

#### Introduction

"More than two thirds of eighth and twelfth graders read at less than a proficient level, and half of those are so far behind that they drop off the scale entirely, scoring below what the US Department of Education defines as its most basic level." <sup>1</sup> In a typical high-poverty urban school half of incoming ninth graders read at a sixth or seventh grade level or below. <sup>2</sup>

Reading instruction generally is not available to middle and high school students. When it is available it typically does not address the vocabulary and concepts contained in content area classes such as history, science, and English. For most students the content area teacher is the only hope of literacy improvement to access success in content area classes. Yet most content area teachers have not been trained as reading teachers, and they must cover ambitious mandated curriculum standards. Content area teachers are left to find ways to adapt to the ever widening range of reading and vocabulary levels within their classes.

Rejecting the common assumption that by middle school and high school it is too late to help struggling readers, "United States History Brain Efficient Word Lists for Word Sorts, Puzzles, and More" author Matthew J. Glavach, Ph.D., offers a literacy approach based on current reading brain research. The approach, which he calls parallel reading intervention, organizes important content area vocabulary words into logical brain efficient word lists that make learning the words much easier. Students improve spelling, word attack, and vocabulary skills while improving their ability to succeed in the content area classes such as history. The article describes the approach, and includes extensive brain efficient word lists for United States history.

#### Removing a Barrier to Content Area Classroom Success: An Approach

A major barrier for struggling students in content area classes is a deficiency in reading and understanding multi-syllable words, especially domain specific words found in content area textbooks. The deficiency compromises student fluency and comprehension. An emphasis on teaching multi-syllable words is critical because the meaning of content area textbook passages is almost totally

carried by multi-syllable words. When students are thousands of words behind in vocabulary, one solution is teaching domain specific vocabulary in a brain efficient way.

## Teaching Multi-syllable Words in Consistent Patterns is Brain Efficient

Teaching multi-syllable words in consistent patterns is brain efficient, as expressed in the following research findings about the brain.

-Multi-syllable words are like music, they have natural rhythms that can make learning them easier. "Accent structures in words naturally make a sort of melody."<sup>3</sup> The rhythmic feature creates less demand on the brain and is helpful in moving words into long term memory.<sup>4</sup>

-Brain research shows that a similar word pattern can prime the next word if it has a similar pattern, and this can accelerate reading. Rhyming words are especially powerful.<sup>5</sup> (See Figure 1.)

Figure 1. Rhyming Word Examples

nation taxation      inflation  
population   migration      relocation

-Even when the words do not rhyme but have the same ending spelling pattern, reading time is accelerated. (See Figure 2.)

Figure 2. Spelling Pattern Examples

document      amendment government

-The brain's neural networks respond in patterns. Words are decoded by looking for familiar patterns. The brain forms orthographic representations of the most common visual patterns. Letter patterns like **ant** become **plant** and **plantation**.

Figure 3. Word Pattern Examples

dependent      dependent      dependent      independent  
resignation      resignation      resignation

-Brain efficient reading includes using both sides of the brain effectively and efficiently. For most people the left side of the brain deals with language while the right side handles rhythm, intonation, and language patterns. The brain does its best work when both sides of the brain communicate harmoniously.

## Using Word Sorts to Build Spelling and Word Attack Skills

To build word attack skills, sorting words into categories helps students see features common to each word group. Teachers choose words from ending categories to build word sorts. For example words can be chosen from different ending categories to develop matching word sort cards, puzzles, and games (-er, -or, and -ar: trader, traitor, solar). Words can also be chosen within categories when word endings vary (-al, ial, and cial: naval, colonial, social).

For additional teaching activity ideas see the June 2011 **National Association of Special Education Teachers, Practical Teacher** article entitled “**World History Brain Efficient Word Lists for Word Sorts, Puzzles, and More**” by Matthew J. Glavach, Ph.D.

## **Using the World History Brain Efficient Word Lists**

The United States history brain efficient word list word organization is based on a logical system of decoding orthography built around a brain efficient methodology, which makes it easier for students to pronounce the words. It is not necessary that students know all the word meanings. Teachers determine how much vocabulary to study based on their groups. If students are able to pronounce the words, they will learn more from context. Sound development will help student word attack skills for United States history and general reading ability. By improving word attack skills, students will gain more information from textbooks and classroom lessons.

The word list does not contain all difficult words found in United States history textbooks. But by mastering the frequently used words chosen for the word lists students find it easier to read the difficult words. Teachers may add to or modify the word lists. The slash marks (/) are based on rhythmic word patterns and are helpful when students are using the word lists for practice reading.

The author, Matthew J. Glavach, Ph.D., grants teachers permission to make copies, or posters, of the word lists for individual classroom use.

## **United States History Brain Efficient Word Lists**

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-ER

order border barter charter / conquer soldier / trader invader prisoner / explorer exporter importer / surrender dissenter disaster / employer laborer consumer commoner / planter commander astronomer / philosopher cartographer / Quaker caretaker Mayflower

-OR

labor manor harbor / juror visitor ancestor / senator governor / author surveyor survivor supervisor / dictator traitor equator / legislator navigator / demonstrator educator speculator investigator negotiator / warrior superior inferior / proprietor ambassador

-AR

solar polar popular calendar / familiar nuclear / regular secular spectacular

-SURE, TURE

measure treasure pleasure exposure / capture venture adventure indenture / manufacture literature legislature / temperature expenditure architecture / Scripture sculpture structure culture agriculture

-AGE

damage manage savage / hostage bondage voyage / village passage suffrage / carnage mortgage shortage / courage average acreage / heritage orphanage / carriage marriage patronage / advantage disadvantage /

-MENT

movement / development document monument / agreement amendment government Parliament / enforcement investment environment / settlement tenement encampment / appointment employment enjoyment / containment impeachment involvement / armament adornment accomplishment establishment / imprisonment enlightenment disenfranchisement

-ENT

event continent resident president/independent violent nonviolent/consent dissent discontent/  
turbulent correspondent/ incident incumbent opponent prominent/ancient efficient  
constituent

-ANT

migrant immigrant/peasant servant merchant/tyrant constant covenant/vigilant militant  
elegant arrogant/extravagant inhabitant/defiant tolerant Protestant/ occupant assailant/  
abundant descendant lieutenant

-ENCE

residence evidence/ dependence independence violence nonviolence/ turbulence consequence  
correspondence

-ANCE

vigilance elegance/arrogance extravagance/finance defiance alliance allegiance/tolerance  
intolerance ordinance

-AN, -IAN

veteran republican/partisan bipartisan/Puritan urban suburban metropolitan/ civilian  
historian agrarian pedestrian/utopian humanitarian Jeffersonian

-IC,

civic public republic/romantic gigantic/nomadic democratic/heroic historic prehistoric/  
patriotic atomic economic/Atlantic Pacific scientific/epidemic traffic demographic/ethnic  
domestic/democratic aristocratic/statistic capitalistic materialistic characteristic/geographic  
bureaucratic

-SIVE, -TIVE

massive expensive extensive offensive/productive protective effective executive/subversive  
conservative/legislative representative

-IZE, -ISE

colonize mobilize minimize sympathize/authorize industrialize decentralize/ revolutionize  
compromise advertise merchandise

-AL, -IAL, -CIAL

naval legal global/equal brutal/radical capital liberal federal/original municipal political  
critical physical/refusal approval tribunal/technical mechanical/fundamental environmental  
electoral/continental transcontinental/industrial colonial territorial/burial ceremonial/social  
racial financial/commercial official judicial

-AL, -TIAL

national educational constitutional unconstitutional/natural cultural agricultural/ inaugural  
chronological/essential presidential partial impartial

-ABLE, -LE

capable preamble resemble assemble/memorable miserable/profitable predictable  
unpredictable/questionable unquestionable/justifiable unjustifiable tolerable intolerable/  
unalienable unavoidable fashionable/ principle cycle recycle

-ON, -ION

weapon fashion/region religion rebellion

-OUS

prosperous glamorous unanimous/disastrous victorious notorious spontaneous/ religious  
rebellious/suspicious cautious

-SION

tension pension mansion expansion/decision provision/recession depression aggression/  
oppression possession concession/erosion explosion invasion/revision commission  
permission television

-ECTION

election direction protection / selection objection rejection / reelection insurrection

-UCTION

instruction production destruction / corruption construction reconstruction

-UTION

institution constitution contribution / persecution execution distribution / revolution resolution

-ITION

condition position petition opposition / competition prohibition malnutrition / jurisdiction

expedition superstition

-ATE

violate nominate / discriminate separate segregate / migrate immigrate emigrate

regulate / contaminate terminate devastate / eliminate assimilate / cultivate

cooperate / negotiate

-ATE

climate private adequate / senate separate desperate / electorate confederate compassionate

-ATION

nation taxation inflation plantation / population migration relocation / transportation navigation

ratification / exploration colonization civilization / segregation separation discrimination /

demonstration legislation liberation emancipation / negotiation cooperation / inauguration

celebration / education qualification occupation resignation compensation / formation

corporation motivation / innovation administration industrialization /

-ATION

conservation preservation regulation toleration / violation Reformation desolation / restoration

transformation / immigration naturalization / proclamation declaration justification / starvation

retaliation confederation precipitation

-IST

colonist loyalist journalist / pacifist terrorist economist / suffragists Federalist nationalist

industrialist / abolitionist socialist lobbyist

-ISM

criticism Fascism optimism / patriotism populism capitalism / socialism communism journalism

-ITY

unity community opportunity / publicity diversity university / minority majority authority

superiority / hostility brutality atrocity / generosity curiosity / security legality solidarity /

prosperity popularity / productivity commodity neutrality / indemnity Christianity conformity

-Y

company colony destiny / economy tyranny / treaty amnesty honesty society / liberty loyalty

poverty property / geography technology

-CY

policy currency literacy / democracy supremacy conspiracy legacy / confederacy bureaucracy

-LY

assembly consequently continuously / voluntarily economically monopoly

-ORY

history victory factory / territory regulatory / category inventory compulsory

-ERY

discovery bravery slavery antislavery / bribery tannery / recovery machinery artillery

-ARY

boundary salary primary ordinary temporary secretary anniversary dietary monetary

mercenary military literary missionary revolutionary subsidiary judiciary

-PHY, -OLOGY

biography autobiography photography chronology anthropology

## STATES

Nevada Montana Indiana / Minnesota Oklahoma Arizona / North and South Dakota / Florida  
Utah / North Carolina South Carolina / Virginia West Virginia / California Pennsylvania Georgia  
/ Iowa Hawaii / Alaska Nebraska  
Ohio Colorado New Mexico Idaho / Texas Arkansas Kansas /  
Michigan Wisconsin Oregon Washington Vermont/  
Maine Mississippi Massachusetts / Connecticut Illinois

## References

- (1) Heller, R. and Greenleaf, C.L. (2007). Literacy Instruction in the Content Areas, Getting to the core of middle and high school improvement. (p.2) The Alliance for Excellent Education
- (2) Heller, R. and Greenleaf, C.L. (2007). Literacy Instruction in the Content Areas, Getting to the core of middle and high school improvement. (p.3) The Alliance for Excellent Education
- (3) Levitan, D.J. (2009). The World in Six Songs (p.25) New York: Penguin Books
- (4) Levitan, D.J. (2009). The World in Six Songs (p.172) New York: Penguin Books
- (5) Dehaene, S.D. (2009). Reading in the brain (p. 42). New York: Viking/Penguin Group.

Currently a downloadable copy of the book “**United States History Word Sorts**” is available at the author's website [www.StrugglingReaders.com](http://www.StrugglingReaders.com)