


Visualizing Disciplinary Thinking

10 KEY IDEAS about *Differentiated Visual Tools™*

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KU LEARNING
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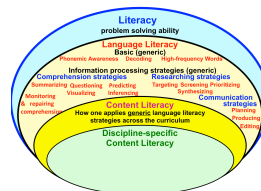
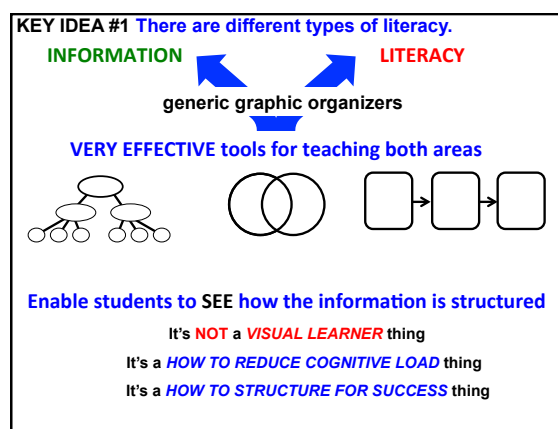
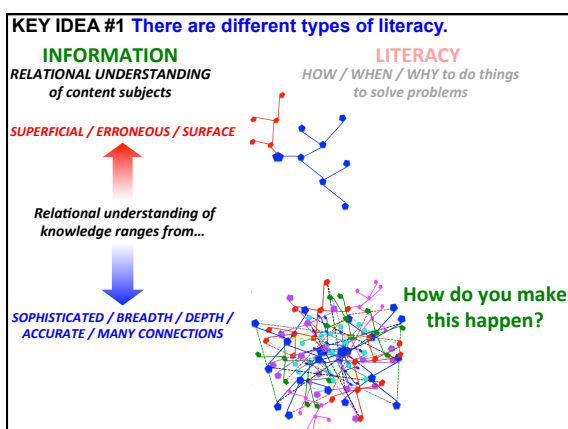
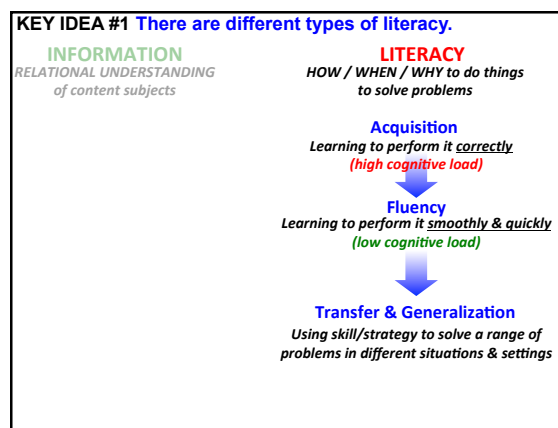
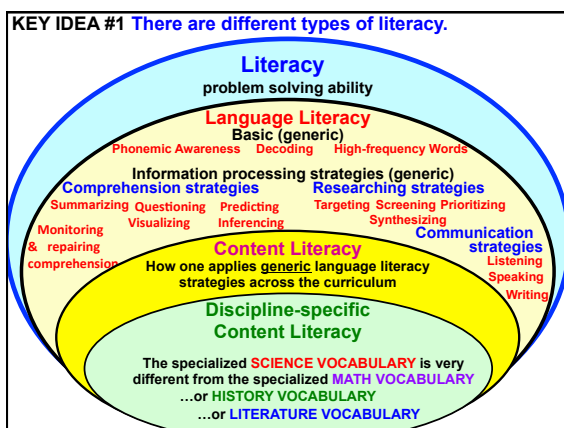
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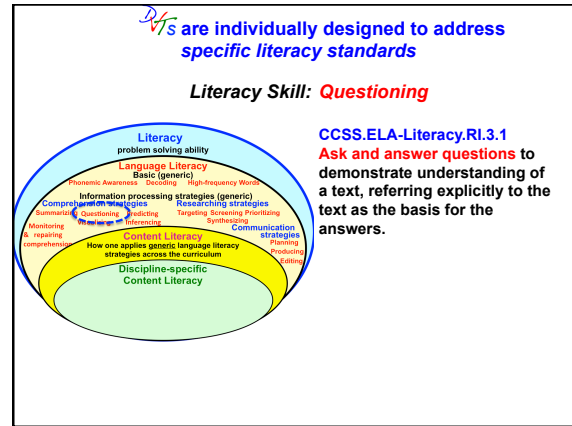
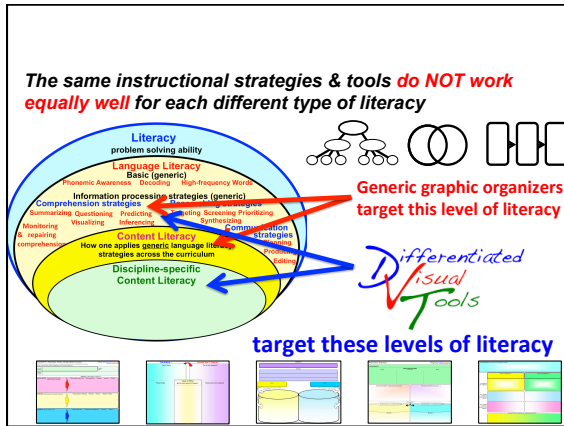
K-12 Curriculum = two strands of learning standards

INFORMATION
RELATIONAL UNDERSTANDING
of content subjects

LITERACY
HOW / WHEN / WHY to do things
to solve problems

For example...
Science
Social Studies / History
Economics
Civics
Math concepts
Etc.



TITLE | **Meet the Mayor** by Armin Franke

WHO was the main PERSON in the story?

The Mayor

WHAT happened to the PERSON?

People vote for who they want to be mayor. The mayor promises to work hard. They work in city hall, and make laws and rules.

WHERE did it happen?

In every city and town in the United States

Draw a picture

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PERSON

Johnny Appleseed

PICTURE

Make up a HOW, WHY or WHEN question about the PERSON

Why did Johnny Appleseed plant so many apple trees?

Answer to your question

He was a nurseryman. He wanted everyone to have an apple tree. He taught people how to take care if plants and land.

What you LIKED OR did NOT LIKE about the PERSON

I like him because he cared about animals and the earth.

So what is the difference between these two visual tools?

HINT: Here's the standard....

Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

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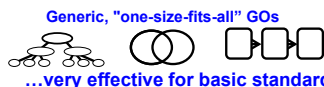
Let's say you are attempting to teach this 3rd grade standard...

Compare and contrast the most important points and key details presented in two texts on the same topic.

Which of these address the standard?

This one compares two different things

This one compares two books about the same thing

KEY IDEA #2 Some visual tools are a lot better than others!

Retell stories, including key details, and demonstrate understanding of their central message or lesson.

Compare and contrast the adventures and experiences of characters in stories

BUT

...not so great as standards get more complex

Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.
(8th grade)

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KEY IDEA #3 Discipline-specific visuals are a LOT better than generic GOs when teaching complex standards

As grade levels increase, the nature of content learning changes
...it becomes increasingly more **discipline-specific**

The WAY one processes information in different subjects is **very different**

SCIENCE	HISTORY	LITERATURE	MATH
Specialized science vocabulary	Specialized history vocabulary	Specialized literature vocabulary	Specialized math vocabulary
Unique set of science generative ideas	Unique set of history generative ideas	Unique set of literary analysis generative ideas	Unique set of math generative ideas
How one thinks about & understands science	How one thinks about & understands history	How one thinks about & understands literature	How one thinks about & understands math

generic, one-size-fits-all GOs fail to address these important differences in disciplines

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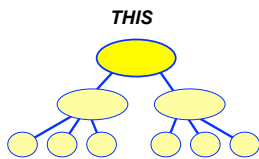
KEY IDEA #3 Discipline-specific visuals are a LOT better than generic GOs when teaching complex standards

Let's say you are attempting to teach this standard...

RL.9-10.2. Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.

What's the difference between...

...and THIS?



NAME: _____

THEME of the story is author's unstated opinion or message about the story's topic

TOPIC of the story: _____

CHARACTER - The three robbers have been in a bar all night long and are very drunk. Because they have all gotten drunk together they say they are loyal to each other when they're not. (False friends often turn on each other.)

SETTING - The gold under the tree When the three robbers find the gold under the tree, each starts thinking about getting rich - selfishness quickly replaces loyalty.

EVENT - The three robbers end up killing each other Because they all turned their backs on each other to try and keep more of the gold, they all ended up dead.

Author uses motivation (to get rich) to drive home the theme that "betraying your friends will lead to your downfall - in this case, your death"

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STORY The Pardoner's Tale by Geoffrey Chaucer

TOPIC of the story Loyalty **THEME of the story is** (author's unstated opinion or message about the story's topic) Betraying your friends will lead to your own downfall.

Description of an EVENT, CHARACTER, or SETTING CONNECTIONS TO THE THEME

CHARACTER - The three robbers have been in a bar all night long and are very drunk. Because they have all gotten drunk together they say they are loyal to each other when they're not. (False friends often turn on each other.)

Literary device used in the connection ☒ Irony ☐ Satire ☐ Parody ☐ Motivation ☐ Personification ☐ Symbolism ☐ Other

Explanation: Irony because it seems like they are really good friends, so you would expect them to help each other out and share stuff, but the reality is, they end up doing the opposite.

SETTING - The gold under the tree When the three robbers find the gold under the tree, each starts thinking about getting rich - selfishness quickly replaces loyalty.

Literary device used in the connection ☐ Irony ☐ Satire ☐ Parody ☒ Motivation ☐ Personification ☐ Symbolism ☐ Other

Explanation: The gold symbolizes greed and shows how it can make people turn on each other.

EVENT - The three robbers end up killing each other Because they all turned their backs on each other to try and keep more of the gold, they all ended up dead.

Literary device used in the connection ☐ Irony ☐ Satire ☐ Parody ☒ Motivation ☐ Personification ☐ Symbolism ☐ Other

Author uses motivation (to get rich) to drive home the theme that "betraying your friends will lead to your downfall - in this case, your death"

The Pardoner's Tale

The Pardoner's Tale by Geoffrey Chaucer is a story about loyalty, or rather the lack of it. I think Chaucer's message about life is "betraying your friends will lead to downfall." For example, one of the ways Chaucer communicates this message is by his use of characters and irony. Three robbers have been in a bar all night long and have gotten very drunk. They talk about how loyal they are to each other and how they have become brothers. In reality, they just met each other in a bar and are not loyal to each other at all. They're just drunk. Basically Chaucer is saying that false friends will turn on each other. Chaucer uses irony to set the stage in this part of the story to establish that the so-called loyal friends are about to betray each other later in the story.

Chaucer also uses the setting of the story and symbolism to communicate the betrayal theme. There's a particular setting where there is a bag of gold under a tree. The gold symbolizes greed and shows how it can make people turn on each other. The men think that if they take the gold, they will be very happy. In other words, the greed of the robbers will far outweigh any false loyalty they may have toward each other. Each wants the gold for himself.

The three robbers end up killing each other. Here, Chaucer uses an event in the story and motivation as a literary device to illustrate the betrayal theme. Because they all turned their backs on each other to try and keep more of the gold, they all ended up dead.

Chaucer use of irony, symbolism, and motivation all relate to the story's theme of loyalty. A theme is a message about life, and the message here is that false friends turn on each other. If the thieves were true friends, they wouldn't have killed each other because of greed for the gold.

KEY IDEA #4 Teaching complex skills is most effective when instruction is scaffolded.

the same webs & Venns are used in 2nd grade & 11th grade!

KEY IDEA #4 Teaching complex skills is most effective when instruction is scaffolded.

TOPIC: **Playing in the snow**

Words about this topic: **Make a snowman**, **Throw snowballs**, **Build a fort**, **Need warm clothes**, **Wear mittens**

Draw a Picture:

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KEY IDEA #4 Teaching complex skills is most effective when instruction is scaffolded.

TOPIC: **American Indians**

Words about this topic: **clothes**, **history**, **food**, **Shelter**, **corn**, **Pets**

Draw and color a picture about this topic:

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KEY IDEA #4 Teaching complex skills is most effective when instruction is scaffolded.

TOPIC: **My dog Zoe**

Words about this topic: **has spots**, **digs holes**

Sentence: **1 Zoe has lots of spots.**, **2 She likes to dig holes.**

Draw a picture:

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KEY IDEA #4 Teaching complex skills is most effective when instruction is scaffolded.

TOPIC: **Thanksgiving is my favorite holiday!**

ORDER: **2 Wearing costumes**, **1 Native Americans**, **3 The feast!**, **4 Out of school**

IDEA: **At school we dress up like Pilgrims or Native Americans. That is really fun.**, **We visit Moundville and climb the mounds where the Native Americans lived. We see ceremonies and get our faces painted.**, **We have a Thanksgiving feast at school just like the Pilgrims and Native Americans had.**, **I also like to be out of school for a week, and I get to do things with my family.**

SENTENCE: **At school we dress up like Pilgrims or Native Americans. That is really fun.**, **We visit Moundville and climb the mounds where the Native Americans lived. We see ceremonies and get our faces painted.**, **We have a Thanksgiving feast at school just like the Pilgrims and Native Americans had.**, **I also like to be out of school for a week, and I get to do things with my family.**

TOPIC: **Marly & Ernie**

Words about this topic: **Cats**, **fuzzy**, **Cute**, **Stripes**, **Solid**

Sentences: **Marly and Ernie are my cats.**, **They are fuzzy.**, **I think they are cute.**, **Ernie has stripes.**, **Marly is solid black.**

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Marly & Ernie

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Topic: Marly & Erne	
Write about the topic	Describe
1 Cats	Marly and Erne are my cats.
3 Fuzzy	They are fuzzy.
2 Cute	I think they are cute.
4 Stripes	Erne has stripes.
5 Solid	Marly is solid black.

Marly & Erne

Marly and Erne are my cats.

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Marly & Erne

Marly and Erne are my cats. I think they are cute.

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Marly & Erne

Marly and Erne are my cats. I think they are cute. They are fuzzy.

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Marly & Erne

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Topic: Recycling	
INTRODUCTION This is about... why everyone should recycle the things they use in their homes.	
3 Reduces landfills...	Recycling cuts down on the need for more landfills. No one wants to live near one.
2 Protects wildlife...	Recycling protects wildlife habitats. Paper recycling alone saves millions of trees.
4 Helps our climate...	Recycling produces less carbon reducing the amount of greenhouse gas emissions.
1 Can save money...	Recycling helps us reuse things we have instead of making new things.
ENDING When we recycle it helps our climate, the earth, and protects wildlife. Also it is the right thing to do!	

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Recycling

Everyone should recycle the things they use in their homes. Recycling helps us reuse things we have instead of making new things. It also protects wildlife habitats. Paper recycling alone saves millions of trees. Recycling cuts down on the need for more landfills. No one wants to live near one. Recycling produces less carbon, so it reduces the amount of greenhouse gas emissions we make. In conclusion, when we recycle it helps our climate, the earth, and protects wildlife. Also it is the right thing to do!

STORY	
What was the message about life in the story?	
Reason why I think this is the message...	Details
Another reason why I think it is the message...	Details
CONCLUSION: Is the message important? Why?	

STORY	
Mufaro's Beautiful Daughters by John Steptoe	
What was the message about life in the story?	
I think the message was that being kind and good to people makes you happier and leads to a better life.	
Reason why I think this is the message...	Details
Nyasha was kind to everyone.	She did not try to hurt her sister who was mean to her. She was chosen to be queen because of her kindness.
Another reason why I think it is the message...	Details
Manyara was mean to her sister and everyone.	She was also mean to a little boy who was really the king. Manyara ended up being a servant to her sister.
CONCLUSION: Is the message important? Why?	
If you are mean to others, you will always be unhappy and just want to be even meaner.	

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STORY	
TOPIC of the story	THEME of the story is (author's unstated opinion or message about the story's topic)
Description of an EVENT, CHARACTER, or SETTING	CONNECTIONS TO THE THEME
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CONCLUSION: Is the message important? Why?	

STORY	
A Gathering of Days by Joan W. Blos	
TOPIC of the story	THEME of the story is (author's unstated opinion or message about the story's topic)
Circle of life	There are many circles of life that overlap.
Description of an EVENT, CHARACTER, or SETTING	CONNECTIONS TO THE THEME
Catherine lost her mother & little brother when she was 9 years old. She had to run the household with help from her neighbor & sister. She learned how to cope with the challenges.	One of the "life circles" is about Catherine experiencing challenges or problems, dealing with them, moving on, facing new problems, dealing with them, moving on again, etc. Father re-marries, new mother & brother. Must adjust to a new mother & brother. Theme of the journal: "Got a problem? Deal with it! Move on."
Description of an EVENT, CHARACTER, or SETTING	CONNECTIONS TO THE THEME
One of the "life circles" is about the seasons of life. Catherine's journal focuses on life on a farm. Each season brings new promises, different jobs, new challenges, and joy. Starts all over each year.	Page 51 - "At mid-day today the storm let up; by dusk a few pale shadows appeared on the hillock'd snow. Father expects that tomorrow will be the day of the breaking out." Page 121 - "The sap, they say, is running in the better sheltered trees." "Haying, mowing, gathering in!"
CONCLUSION: Is the message important? Why?	
Everyone experiences the same basic circles of life, although they happen in different times and ways	

STORY	
A Gathering of Days by Joan W. Blos	
TOPIC of the story Circle of life	THEME of the story is (author's unstated opinion or message about the story's topic) There are many circles of life that overlap.
Description of an EVENT, CHARACTER, or SETTING Catherine lost her mother & little brother when she was 9 years old. She had to run the household with help from her neighbor & sister. She learned how to cope with the challenges.	CONNECTIONS TO THE THEME One of the "life circles" is about Catherine experiencing challenges or problems, dealing with them, moving on, facing new problems, dealing with them, moving on again, etc. Father re-marries, new mother & brother. Must adjust to a new mother & brother. Theme of the journal: "Got a problem? Deal with it! Move on."
Description of an EVENT, CHARACTER, or SETTING One of the "life circles" is about the seasons of life. Catherine's journal focuses on life on a farm. Each season brings new promises, different jobs, new challenges, and joy. Starts all over each year.	CONNECTIONS TO THE THEME Page 51 - "At mid-day today the storm let up; by dusk a few pale shadows appeared on the hillcock'd snow. Father expects that tomorrow will be the day of the breaking out." Page 121 - "The sap, they say, is running in the better sheltered trees." "Haying, mowing, gathering in!"
CONCLUSION: Is the message important? Why? Everyone experiences the same basic circles of life, although they happen in different times and ways.	

STORY	
TOPIC of the story	THEME of the story is (author's unstated opinion or message about the story's topic)
Description of an EVENT, CHARACTER, or SETTING Literary device used in the connection → <input type="checkbox"/> Irony <input type="checkbox"/> Satire <input type="checkbox"/> Parody <input type="checkbox"/> Motivation <input type="checkbox"/> Personification <input type="checkbox"/> Symbolism <input type="checkbox"/> Other Explanation...	CONNECTIONS TO THE THEME
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CONCLUSION: Is the message important? Why?	

STORY	
The Brave by Robert Lipsyte	
TOPIC of the story Growth & initiation	THEME of the story is (author's unstated opinion or message about the story's topic) You have to experience many trials & tribulations to find your own identity
Description of an EVENT, CHARACTER, or SETTING Sonny's mother is Native American & his white father died in Vietnam. He is a fighter and has a gift for drawing. He is embarrassed and hides his drawings. He wants to leave the Reservation, and his past.	CONNECTIONS TO THE THEME Sonny does not embrace his Native American or white culture. Both embarrass him. He leaves the Reservation, but also does not want to live with his mother in Phoenix. He eventually realizes that he is an artist and a fighter. He finds value in his heritage and trains as a true running brave.
Literary device used in the connection → <input type="checkbox"/> Irony <input type="checkbox"/> Satire <input type="checkbox"/> Parody <input checked="" type="checkbox"/> Motivation <input type="checkbox"/> Personification <input type="checkbox"/> Symbolism <input type="checkbox"/> Other Explanation... Many people motivate Sonny in his life. His Uncle Jake tries to bring him up as a Running Brave. Jake lets Sonny leave the Reservation, but later follows him to protect him. He encourages Sonny to work with a trainer to improve his boxing. Brooks is a police officer that becomes Sonny's friend, and father figure. He encourages Sonny to do the right thing.	
Description of an EVENT, CHARACTER, or SETTING Sonny is befriended by drug dealers as soon as he gets off the bus in NYC. He is given cash to make runs for them, but does not know they are drugs. He gets caught and sent to prison where he connects to his heritage.	CONNECTIONS TO THE THEME Sonny tries to find his identity with his friendship with Doll and Stick. He thinks they are accepting him for who he is when Stick is really using him. While in prison he refuses to let them cut his hair. He says, "I am Sonny Bear, a member of the Mosconogage Nation. This is how we wear our hair!"
Literary device used in the connection → <input type="checkbox"/> Irony <input type="checkbox"/> Satire <input type="checkbox"/> Parody <input type="checkbox"/> Motivation <input type="checkbox"/> Personification <input checked="" type="checkbox"/> Symbolism <input type="checkbox"/> Other Explanation... Sonny's hair becomes a symbol to him of his heritage. When faced with having it cut off, he refuses and proudly says he is a member of the Mosconogage Nation. In prison he also turns to his art. He used his Shyoblam trays to draw. The art symbolizes Native American heritage of using whatever resources are available.	
CONCLUSION: Is the message important? Why? I agree with the story's theme. You have to learn to be yourself and stop trying to be someone else just because others want you to.	

...rather, we build up to it

Thus, we **don't start** with something this complex...



Process Time

PAUSE AND THINK ABOUT WHAT YOU'VE HEARD

With your elbow partner...

- paraphrase Key Idea #4 to each other
- clarify and / or question

With larger group...

- share your thoughts
- ask clarifying questions

KEY IDEA #5 *RF*s are leveled to support differentiated instruction

KEY IDEA #5 *Df/s* are leveled to support differentiated instruction

Some struggling learners in a classroom may be learning to use this DVT because it matches their developmental levels

The diagram shows a staircase of leveled DVTs. The lower levels are highlighted in yellow and green, while the higher levels are in blue and purple. An arrow points to a lower-level DVT, indicating it is suitable for struggling learners.

KEY IDEA #5 *Df/s* are leveled to support differentiated instruction

At the same time, typical learners may be learning to use a more advanced version

The diagram shows a staircase of leveled DVTs. The lower levels are highlighted in yellow and green, while the higher levels are in blue and purple. An arrow points to a higher-level DVT, indicating it is suitable for typical learners.

KEY IDEA #5 *Df/s* are leveled to support differentiated instruction

...provides special education teachers a set of powerful tools for co-teaching situations

...while the advanced students in the class are learning to use the more advanced DVTs

The diagram shows a staircase of leveled DVTs. The lower levels are highlighted in yellow and green, while the higher levels are in blue and purple. An arrow points to a higher-level DVT, indicating it is suitable for advanced students.

Process Time

PAUSE AND THINK ABOUT WHAT YOU'VE HEARD

With your elbow partner...

- paraphrase Key Idea #5 to each other
- clarify and / or question

With larger group...

- share your thoughts
- ask clarifying questions

The illustration shows two students, a boy and a girl, standing and talking. The boy is wearing a blue shirt and brown shorts, and the girl is wearing a yellow shirt and purple shorts.

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Define the issue

WHAT is the issue?

WHO should be concerned about the issue? WHY?

WHEN did the issue emerge? Why then?

Establish a clear position on the issue

My position is...

Back-up the position with reasons and supporting facts (listened reason 1st, strongest reason last)

REASON	Supporting facts
REASON	Supporting facts

Acknowledge the opposition's position

Opposition's position is...

Tell why the opposition's position is incorrect (other strongest reason 1st, their weakest reason last)

REASON opposition might give...	Why this reason is faulty...
REASON opposition might give...	Why this reason is faulty...

End by re-stating your position and summarizing the most important reason why

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Define the issue

WHAT is the issue?

Whether to raise the speed limit on interstates

WHO should be concerned about the issue? WHY?

Everybody that travels or buys goods shipped via highways

WHEN did the issue emerge? Why then?

Pres. Carter ordered slower speed-limits due to gas shortage

Define the issue

WHAT is the issue?

WHO should be concerned about the issue? Why?

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REASON opposition might give...	Why this reason is faulty...

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Define the issue

WHAT is the issue?
Whether to raise the speed limit on interstates

WHO should be concerned about the issue? WHY?
Everybody that travels or buys goods shipped via highways

WHEN did the issue emerge? Why then?
Pres. Carter ordered slower speed-limits due to gas shortage

Establish a clear position on the issue

My position is...
The speed limit should be lowered to 65mph on interstates

Establish a clear position on the issue

My position is...

Acknowledge the opposition's position

Opposition's position is...

Tell why the opposition's position is incorrect (their strongest reason 1st, their weakest reason last)

REASON: opposition might give...	Why this reason is faulty...
REASON: opposition might give...	Why this reason is faulty...

End by re-stating your position and summarizing the most important reason why

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Define the issue

WHAT is the issue?
Whether to raise the speed limit on interstates

WHO should be concerned about the issue? WHY?
Everybody that travels or buys goods shipped via highways

WHEN did the issue emerge? Why then?
Pres. Carter ordered slower speed-limits due to gas shortage

Establish a clear position on the issue

My position is...
The speed limit should be lowered to 65 on interstates

Back-up the position with reasons and supporting facts (weakest reason 1st, strongest reason last)

REASON: Slower speed = less gas	Supporting facts: "greener" + less travel & shipping costs
REASON: Safer at lower speeds	Supporting facts: Slower speed = less wrecks = less deaths

Back-up position with reasons & supporting facts

Weakest reason 1st
Strongest reason last

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Define the issue

WHAT is the issue?
Whether to raise the speed limit on interstates

WHO should be concerned about the issue? WHY?
Everybody that travels or buys goods shipped via highways

WHEN did the issue emerge? Why then?
Pres. Carter ordered slower speed-limits due to gas shortage

Establish a clear position on the issue

My position is...
The speed limit should be lowered to 65 on interstates

Back-up the position with reasons and supporting facts (weakest reason 1st, strongest reason last)

REASON: Slower speed = less gas	Supporting facts: "greener" + less travel & shipping costs
REASON: Safer at lower speeds	Supporting facts: Slower speed = less wrecks = less deaths

Acknowledge the opposition's position

Opposition's position is...
We should raise the speed limit to 75 or 80, not lower it!

Acknowledge the opposition's position

Opposition's position is....

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Define the issue

WHAT is the issue?
Whether to raise the speed limit on interstates

WHO should be concerned about the issue? WHY?
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Back-up the position with reasons and supporting facts (weakest reason 1st, strongest reason last)

REASON: Slower speed = less gas	Supporting facts: "greener" + less travel & shipping costs
---------------------------------	--

Tell why opposition's position is incorrect

Reason opposition might give...
Why this reason is faulty...

Tell why the opposition's position is incorrect (their strongest reason 1st, their weakest reason last)

REASON: Cars made safer now	Supporting facts: 105,000 fatal car accidents last year
REASON: People won't speed as much if speed limit is higher	Supporting facts: Research: Drivers ave. speed = 15-20 mph over limit no matter what speed limit is

End by re-stating your position and summarizing the most important reason why

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Define the issue

WHAT is the issue?
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End by re-stating your position and summarizing the most important reason why

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Define the issue

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Back-up the position with reasons and supporting facts (weakest reason 1st, strongest reason last)

REASON: Slower speed = less gas	Supporting facts: "greener" + less travel & shipping costs
REASON: Safer at lower speeds	Supporting facts: Slower speed = less wrecks = less deaths

Acknowledge the opposition's position

Opposition's position is...
We should raise the speed limit to 75 or 80, not lower it!

Tell why the opposition's position is incorrect (their strongest reason 1st, their weakest reason last)

REASON: Cars made safer now	Supporting facts: 105,000 fatal car accidents last year
REASON: People won't speed as much if speed limit is higher	Supporting facts: Research: Drivers ave. speed = 15-20 mph over limit no matter what speed limit is

End by re-stating your position and summarizing the most important reason why

Interstate Speed Limits

An important issue that concerns everyone is whether the speed limit on interstate highways should be raised. It affects everyone, even children too young to drive and elderly people too old to drive. This is because so many people travel on the interstates, both as drivers and as passengers. It even affects people who never go on the interstate because the speed limit affects the price of goods in terms of their transportation costs. Long ago, President Carter ordered that the speed limit be dropped to 55 miles per hour. This has been raised back to 70 mph on most interstates, but this may not be the ideal speed.

Personally, I think the speed limit should be lowered to 65 mph on interstates. Slowing down just a few miles an hour can save this country a lot of gas because slower speeds burn less gas. Not only will people save at the gas pump, they will save in the grocery store as well because it will not require as much money to ship items if truckers go a little slower.

Most importantly, however, slightly slower speeds can save thousands of lives. According to the National Insurance Council, dropping the speed limit just 5 mph can save as many as 35,000 lives per year. The bottom line is that we are all safer if we all slow down just a little. Slower speeds mean less wrecks and that means less deaths.

There are many people who would like to see the speed limit increased to 75 or even 80 mph on the interstates. They argue that, now that cars have air bags and other safety features, they are a lot safer than they once were and thus are safer to drive at higher speeds. However, according to Laws.com (<http://accidentlaws.com/fatal-accidents>), 105,000 people died in auto-accidents last year. While cars may be safer, that doesn't make them completely safe.

Some also argue that if the speed limit were raised, drivers would be less likely to exceed speed limits and break the law. The reality is that statistics show that drivers are likely to exceed the speed limit an average of 10-15 mph, no matter what the limit is. Thus, when the speed limit is at 70, speeders are actually driving between 80-85 miles an hour. If the limit is raised to 75, they are likely to just drive even faster at 85-90 miles an hour, suck up even more gas, and kill more people. While I agree that it is more fun to drive fast, it is more important to lower emissions and protect our planet, be less dependent on gas, and be safer. Let's lower the limit to 65 and we'll all be better off.

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KEY IDEA #6 *DVS* target generative "essential understandings" of content standards within each discipline

The Science DVTs target **ACT College Readiness Standards** and **Next Generation Science Standards**

The History DVTs target **ACT College Readiness Standards** and **NGSS History & Social Studies standards**

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KEY IDEA #6 *DVS* target generative "essential understandings" of content standards within each discipline

For example, in middle school...

SCIENCE high-frequency topics by science content standards

- Phenomena
- Procedures
- Discovery
- Life Forms
- Structures & Systems
- Theory
- Experiments
- Research

"High Frequency" means that it is highly likely that any given science lesson will be mostly about one of these topics

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KEY IDEA #6 *DVS* target generative "essential understandings" of content standards within each discipline

For example, in middle school...

SCIENCE high-frequency topics by science content standards

- Phenomena
- Procedures
- Discovery
- Life Forms
- Structures & Systems
- Theory
- Experiments
- Research

Each topic has a set of DVTs designed to address its generative essential understandings & thinking patterns

The Phenomena DVTs are different than the Theory DVTs because their generative essential understandings are different and the thinking patterns for understanding each are different

IMPORTANT!

Thus, DVTs are differentiated by complexity, by discipline, by literacy & content standards, by generative essential understandings, and by thinking patterns

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KEY IDEA #6 *DVS* target generative "essential understandings" of content standards within each discipline

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Each topic has a set of DVTs designed to address its generative essential understandings & thinking patterns

The next slide provides an example of a Phenomenon DVT

Thus, DVTs are differentiated by complexity, by discipline, by literacy & content standards, by generative essential understandings, and by thinking patterns

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Phenomenon Essentials ASN

CCSS Standards targeted by this DVT...

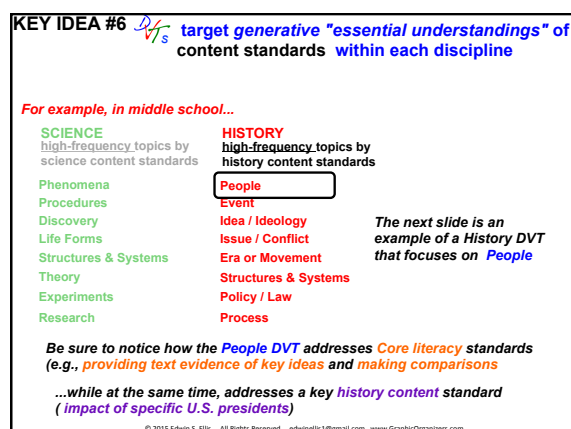
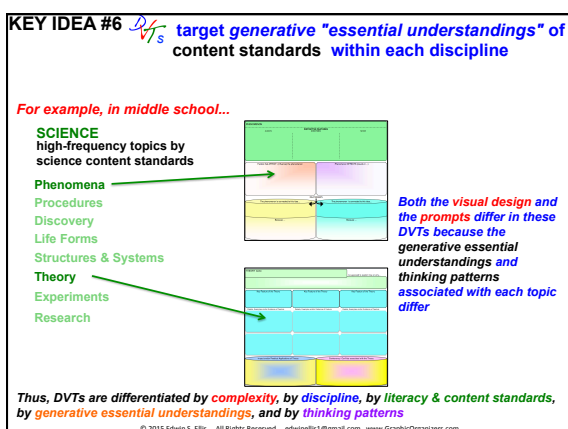
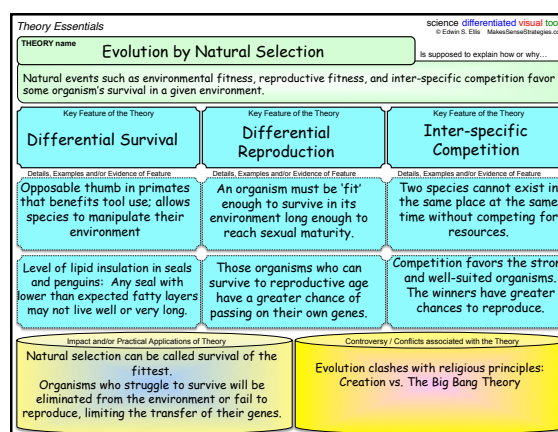
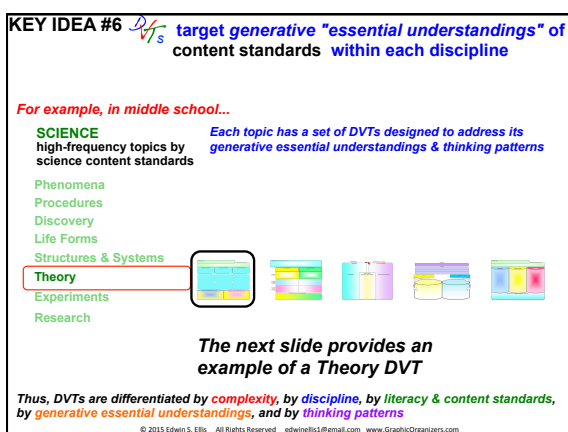
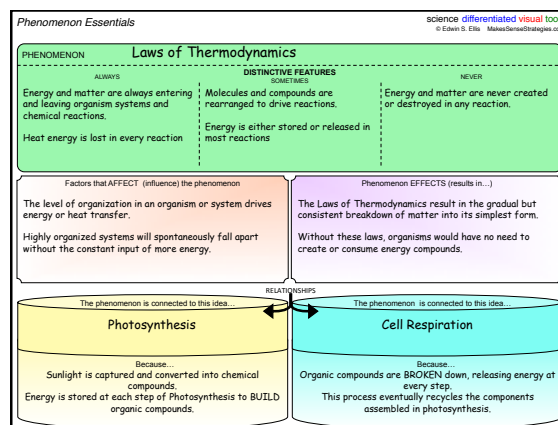
Reading Science
CCSS.ELA-Literacy.RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts.

CCSS.ELA-Literacy.RST.6-8.2 Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

Reading Information Text
CCSS.ELA-Literacy.RI.6.2 Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.

CCSS.ELA-Literacy.RI.7.3 Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).

WRITING
CCSS.ELA-Literacy.WHST.6-8.2
 Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.



PERSON COMPARISONS		differentiated visual tools history
Summarize central ideas distinct from prior knowledge or opinions / Describe how a key person's comparisons information		© Mankusandstrategies.com
	PERSON	PERSON
	Thomas Jefferson (Anti-Federalist)	James Madison (Federalist)
PERSONAL QUALITIES	<ul style="list-style-type: none"> • Displayed perseverance • Believed in education - founded College of Virginia • Innovative - Created a way to copy his letters and notes • Owned slaves yet wrote "All men are created equal" in Declaration of Independence 	<ul style="list-style-type: none"> • Intelligent • Courageous • Determined
GOALS	<ul style="list-style-type: none"> • To secure personal rights and freedoms from the government for the citizens • Limit the power of the government 	<ul style="list-style-type: none"> • To pass the Constitution • To unify the colonies • Wanted a strong (powerful) central government
ACTIONS	<ul style="list-style-type: none"> • Gathered support to <u>block</u> the ratification of the Constitution • Negotiated the first 10 amendments, known as the Bill of Rights 	<ul style="list-style-type: none"> • Looked for ways to appease the colonists in order to get the Constitution passed • Allowing the Bill of Rights, the Constitution was ratified
IMPACT	Impact was being the primary author of Declaration of Independence - set the stage for establishing a democratic government "of the people, by the people"	By working to create the U.S. Constitution, Madison transformed ideas into a set of specific structures, laws, and processes for a "balance of powers"
Do what? What is important to understand about this?		
The two used their individual differences in opinion to secure the personal rights and freedoms of citizens as well as provide a sense of protection from the government.		

KEY IDEA #6 *target generative "essential understandings" of content standards within each discipline*

For example, in middle school...

SCIENCE high-frequency topics by science content standards Phenomena Procedures Discovery Life Forms Structures & Systems Theory Experiments Research	HISTORY high-frequency topics by history content standards People Event Idea / Ideology Issue / Conflict Era or Movement Structures & Systems Policy / Law Process	<i>The next slide is an example of a History DVT that focuses on a ERA or MOVEMENT</i>
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MOVEMENT: Goals • Actions • Impact		
MOVEMENT Women's Suffrage Movement (right to vote) Was about... Getting women (and some men) organized to fight for changing laws so they would have the right to vote - led by Susan B. Anthony & Elizabeth B. Stanton		
When? 1869-1920	CONTEXT: What was happening in history when the movement occurred? How is what was happening connected to the movement? 1869, 15 th Amendment granted black men the right to vote but not ANY women. Women were angry - Susan B. Anthony organized the NWSA to fight for equality in women's rights.	
GOAL of the movement	ACTIONS (how goal was transformed into an action)	IMPACT (what happened as a result of the actions)
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When? 1869-1920	CONTEXT: What was happening in history when the movement occurred? How is what was happening connected to the movement? 1869, 15 th Amendment granted black men the right to vote but not ANY women. Women were angry - Susan B. Anthony organized the NWSA to fight for equality in women's rights.	
GOAL of the movement Allow women to vote in all elections	ACTIONS (how goal was transformed into an action) Public speeches + organize supporters to implement widespread voting poll picketing; passing out flyers to voters;	IMPACT (what happened as a result of the actions) Issue kept in the news - increase awareness of problem - slowly builds public support
GOAL of the movement Female representation in government	ACTIONS (how goal was transformed into an action) Organize women to demonstrate in public- let politicians know how MANY want things changed and how MUCH	IMPACT (what happened as a result of the actions) Issue kept in the news - increased awareness of problem - slowly builds public support & pressure on policy
GOAL of the movement Educate women about equal rights with males	ACTIONS (how goal was transformed into an action) Organize rallies, pass out flyers to get people to come; provide passionate speeches that recruit more participants	IMPACT (what happened as a result of the actions) Convince women that they do not have equal rights and tell them they are not as intelligent as men
GOAL of the movement Increase women's self-confidence	ACTIONS (how goal was transformed into an action) Encouraged women to become economically independent - take advantage of strikes	IMPACT (what happened as a result of the actions) Get men/husbands/fathers to keep their wives at home and not to let them work or earn money in any way

KEY IDEA #6 *target generative "essential understandings" of content standards within each discipline*

For example, in middle school...

SCIENCE high-frequency topics by science content standards Phenomena Procedures Discovery Life Forms Structures & Systems Theory Experiments Research	HISTORY high-frequency topics by history content standards People Event Idea / Ideology Issue / Conflict Era or Movement Structures & Systems Policy / Law Process	<i>The next slide is an example of a History DVT that focuses on a PROCESS</i>
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PROCESS Essentials

PROCESS _____ is about...

When? _____ Context: Situations leading to the development of the process?

STEPS to the process	CONDITIONS necessary for the process to take place	Positive and/or negative IMPACT of the process

Why is the process important?

PROCESS Essentials

PROCESS How a bill becomes a law _____ is about...

the steps necessary to propose a change and create a law.

When? _____ Context: Situations leading to the development of the process? law is needed to solve a problem. There is a need for change or adaptation to make things better or more modern for citizens.

STEPS to the process	CONDITIONS necessary for the process to take place	Positive and/or negative IMPACT of the process
An idea or "change" is proposed.	Must be an need. Must have majority approval of both Houses.	Negative... Inefficient, time-consuming, personal interest become involved. Sometimes the end has nothing to do with how it was first proposed.
The idea is assigned to a committee and studied.	•If President vetoes, it dies unless Congress overrides with a 2/3 vote.	
If the committee decides there is a need for the idea or change, it is sponsored and put to a vote.	•If it sits on President's desk for 10 days & Congress is in session, it passes.	Positive... Checks & balances system, potential for citizen involvement
If the bill passes, it goes to the other House and the process is repeated (studied, changes, approval, etc.)	If they are not active, bill dies.	
Once both houses approve, it is sent to the President of the US. He has 10 days to sign, veto, or let it sit.		

Why is the process important?

The process keeps individuals from having too much power.

KEY IDEA #6 *DVS* target generative "essential understandings" of content standards within each discipline

For example, in middle school...

<p>SCIENCE high-frequency topics by science content standards</p> <p>Phenomena Procedures Discovery Life Forms Structures & Systems Theory Experiments Research</p>	<p>HISTORY high-frequency topics by history content standards</p> <p>People Event Idea / Ideology Issue / Conflict Era or Movement Structures & Systems Policy / Law Process</p>	<p>LITERATURE high-frequency topics by literature content standards</p> <p>Plot Analysis Character Analysis Setting Analysis Theme Analysis Literary Devices Analysis</p>
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The next slide is an example of a Literature DVT that focuses on drawing inferences within the context of Character Analysis

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Motivation Inferences
Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CHARACTER: Sanger Rainsford

Brief description of the character's main GOALS:
At first, Rainsford is excited about the prospect of hunting with General Zaroff. Then, he finds out that he is going to be hunted by Zaroff.

EXPLICIT INFORMATION PROVIDED BY TEXT

CLUES about the character's PERSONALITY	Based on the text clues, my INFERENCES about what motivated the character
Who cares how the jaguar feels. Where there are pistol shots, there are men	Connections character's goals or actions He has no compassion for the animals he hunts. (He does not put himself in another's position well. Rainsford uses deductive reasoning to direct himself to a safer place than the sea
CLUES about the character's VALUES/BELIEFS about life or self The world is made up of two classes—the hunters and the hunted. (p.1) I have played the fox. Now I must play the cat of the fable.	Connections character's goals or actions Rainsford believes that he is strong and in the "hunter" class. (metaphorically, the hunters are the ones in control) Rainsford is a realist. He accepts that he must deal with being hunted.
CLUES about the character's PRIOR EXPERIENCES I've read your book about hunting snow leopards in Tibet. (p.13) Not many men know how to make a Malay man-catcher. (p. 20)	Connections character's goals or actions Rainsford wrote a book about hunting and is considered an expert. Rainsford made this to try to fatally injure Zaroff. He uses his hunting and travel experiences to save himself from General Zaroff.
CLUES about the character's style of INTERACTING with OTHERS The weather is making you soft. Be a realist. (p. 1) I will agree to nothing of the kind. (p.18)	Connections character's goals or actions Rainsford is condescending to his friend. Rainsford will not agree to stay quiet about General Zaroff if he wins the game. He refuses to compromise his integrity.

My CONCLUSION about the character's motivation
General Zaroff began hunting at an early age, and he had no remorse about it. His father fed his desensitization toward pain and death of animals with praise for his marksmanship. Then, he killed people in warfare. His experiences created a belief that the world was made for only strong and victorious people. He feels justified in hunting humans, but we might infer that he is just feeding a terrible addiction.

Process Time

PAUSE AND THINK ABOUT WHAT YOU'VE HEARD

With your elbow partner...

- paraphrase Key Idea #6 to each other
- clarify and / or question

With larger group...

- share your thoughts
- ask clarifying questions

KEY IDEA #7 *DVS* enable teachers to SEE the structure for addressing unfamiliar complex standards in relatively simple, straight-forward ways.

Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.

Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.

It's all about reducing cognitive load while watering-UP the curriculum

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KEY IDEA #7 *DVTs* enable teachers to **SEE** the structure for addressing unfamiliar complex standards in relatively simple, straight-forward ways.

Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.

Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.

For example...

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Person: Fictional Portrayal vs. Historical Account

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name of PERSON	point in TIME	
LITERARY WORK	HISTORICAL ACCOUNT	Conclusion How did the author of fiction use or alter history?
Portrayal of person's PERSONAL QUALITIES		
Portrayal of ISSUE or PROBLEM that concerned the person		
Portrayal of ROLE or ACTIONS the person took related to issue or problem		
Portrayal of IMPACT or EFFECTS of person's actions		

Person: Fictional Portrayal vs. Historical Account

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name of PERSON	point in TIME	
Henry Mayhew	point in 1 st quarter of Queen Victoria's TIME range	
LITERARY WORK <i>Dodger</i> by Terry Pratchett	HISTORICAL ACCOUNT <i>London Labour and the London Poor</i> by Henry Mayhew	Conclusion How did the author of fiction use or alter history?
Portrayal of person's PERSONAL QUALITIES Opened home to mysterious girl He and his wife took care of her Interested in London's poorest Kind, compassionate Not rich, but not poor Generous	Friend of Charles Dickens Journalist, playwright, social researcher, and advocate of reform Co-founder of magazine <i>Punch</i> Skilled storyteller	The author described him mainly as a caring and generous gentleman. He did not describe his other occupations such as playwright or journalist.
Portrayal of ISSUE or PROBLEM that concerned the person Wanted to improve conditions for London's poorest Concerned about lack of clean water, health care, rats, overflowing sewers	Many people flooded into London Very poor, harsh conditions Overflowing sewers and septic tanks Cholera and other diseases	The author described the conditions in London accurately according to historical accounts particularly the work by the real Henry Mayhew.
Portrayal of ROLE or ACTIONS the person took related to issue or problem He and others had a project to make the government see how terrible conditions were in the city Interviewed people about their living conditions and earnings	Used facts and statistics Walked around the streets chatting with orphans, street vendors, prostitutes, etc to learn about conditions Wrote describing their lives	This was very similar to history. Henry Mayhew did write his books/articles based on his interviews with the real people of London.
Portrayal of IMPACT or EFFECTS of person's actions His kindness to Simplicity helped save her life	His books/articles influenced many writers Gave a voice to London's poor The impact was immediate Raised money for the people he wrote about	The novel did not talk much about the impact that Henry had on the conditions of society.

KEY IDEA #7 Many of the Core literacy standards require content-area educators to teach skills not previously taught, and thus place considerable cognitive load on teachers in order to figure out effective ways to address them.

Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.

Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.

Since the DVTs are individually designed to address specific literacy standards, they enable teachers to **SEE** the structure for how to address these standards in relatively simple, straight-forward ways.

For example...

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Author's Response to Conflicting Evidence

CCSS Standards targeted by this DVT...

READING INFORMATION TEXT
CCSS.ELA-Literacy.RI.8.6 Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.

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Author's Response to Conflicting Evidence

science differentiated visual tools
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SOURCE Danielle Dellorto <http://www.cnn.com/2013/04/18/HEALTH/why-cell-phones/index.html>

Define the issue or topic
Summarize the issue/topic addressed by the author AND why it is important.
Whether or not the radiation from cell phones causes multiple forms of brain cancers is really important because so many people use cell phones, a LOT! We could be poisoning ourselves.


Expose author's position (thesis) on the issue and/or purpose for addressing it
The author's position on this issue/topic seems to be... AND/OR The author's purpose for writing about this issue seems to be...
Danielle Dellorto wrote this article that claims cell phones cause brain cancer in order to warn the audience about these risks.

Back-up the position with reasoning and/or supporting evidence
Reasoning and/or supporting evidence the author provided
Dellorto → W.H.O. included mobile phones on "carcinogenic hazards" list (same category as lead, engine exhaust & chloroform). Dellorto quoted Dr. K. Block "What microwave cell phone radiation does is similar to what happens to food in microwaves, essentially cooking the brain." Dellorto noted that head of a U.S. NIH cancer-research institute sent memo to all employees urging them to limit cell phone use b/c of possible cancer risks.

Acknowledge conflicting evidence or alternative viewpoint
What author indicated was an alternative view of the issue or topic OR conflicting evidence
Cell phone manufacturers claim cell phones to be safe when used away from the human body. BlackBerry Bold advises users to "keep the BlackBerry device at least 0.98 inch (25 millimeters) from your body when the BlackBerry device is transmitting."

Target a response to the conflicting evidence or alternative viewpoint
Key point supporting the alternative viewpoint or evidence that conflicts with the author's view AND how the author responded to the key point or conflicting evidence
Apple iPhone 4 User Manual says "users radiation exposure should not exceed FCC guidelines." Dellorto recommends using speakerphone or wired headset to avoid contact with the head or body.
Key point supporting the alternative viewpoint or evidence that conflicts with the author's view AND how the author responded to the key point or conflicting evidence
The Wireless Association added that W.H.O. researchers "did not conduct any new research, but rather reviewed published studies." Dellorto → "The European Environmental Agency has pushed for more studies, saying cell phones could be as big a public health risk as smoking, asbestos and leaded gasoline."

Explain your conclusion
My conclusion is that the author (Dellorto) provided enough evidence to convince me to use headphones instead of putting the cell phone up to my ear. Maybe they cause brain cancer, maybe they don't, but why risk it when it's so easy to just use headphones?



Process Time

PAUSE AND THINK ABOUT WHAT YOU'VE HEARD

With your elbow partner...

- paraphrase Key Idea #7 to each other
- clarify and / or question

With larger group...

- share your thoughts
- ask clarifying questions

KEY IDEA #8

DVTs are powerful tools for watering up the curriculum, but how educators teach with them is equally important.

“Stratagems” for using DVTs effectively...

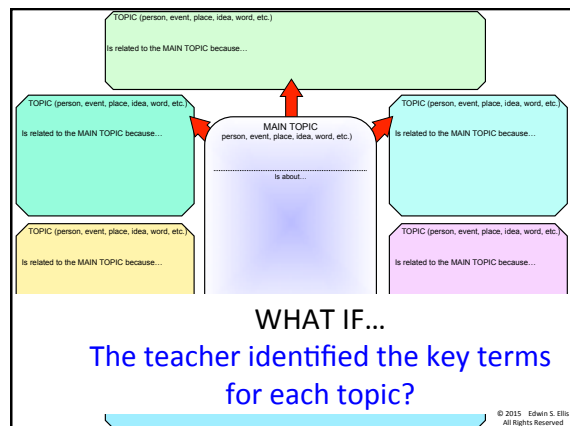
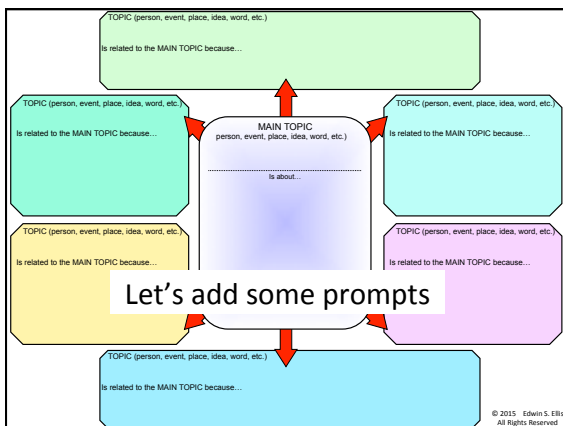
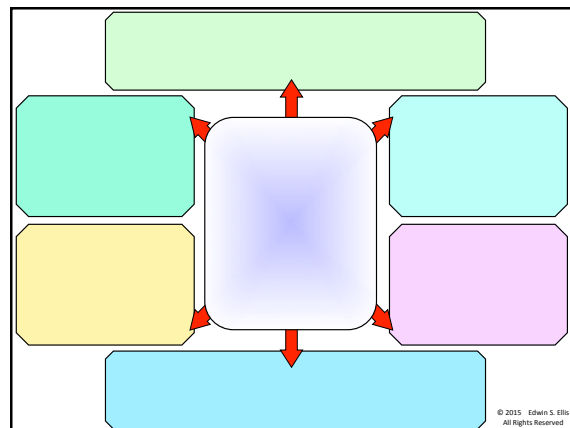
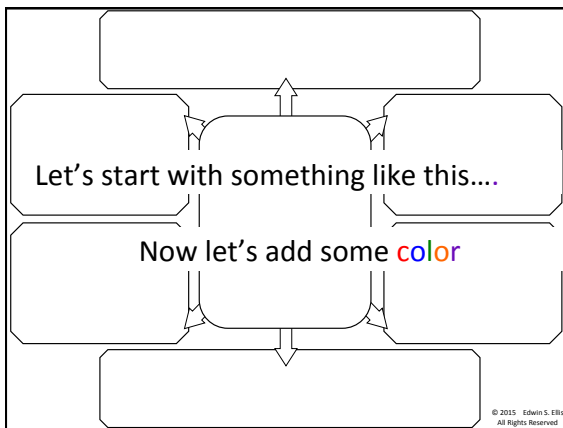
....**BEFORE** the lesson to review prior learning and/or preview or introduce essential questions that the lesson will address;

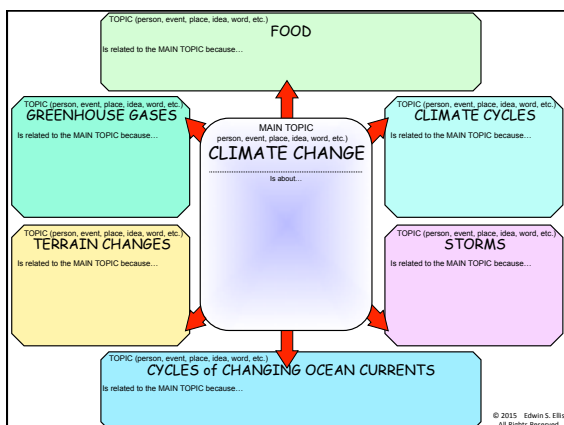
....**DURING** the heart of the lesson to provide clear, explicit instruction that is scaffolded (gradual release);

....**AFTER** the lesson to facilitate reflective reviews of essential understandings as well as essential questions.

The following slides illustrates the “Rotated Visuals” Stratagem

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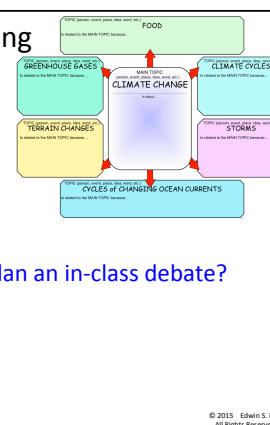




When could something like this be used?

Could students use this to plan an expository writing essay about "Climate Change."?

Could students use it to plan an in-class debate?



When could something like this be used?

Could it be used at the **BEGINNING** of a lesson?

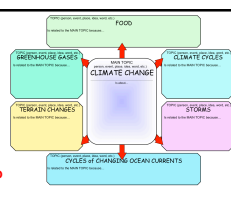
Review previously taught terms?
Pre-teach new terms?

Could it be used **DURING** the lesson?

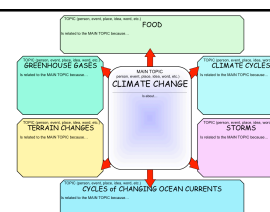
Guided Reading / Note-taking?

What about at the **END** of the lesson?

Review new vocabulary?

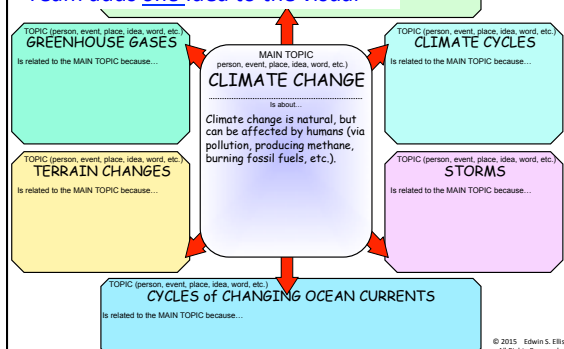


What if, to review or anchor key terms taught during the lesson, you rotated the visual from team-to-team?



What if you rotated the visual from team-to-team?

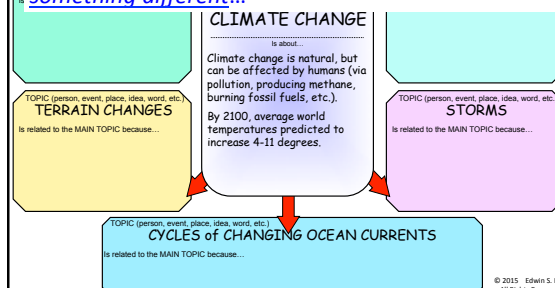
Team adds one idea to the visual

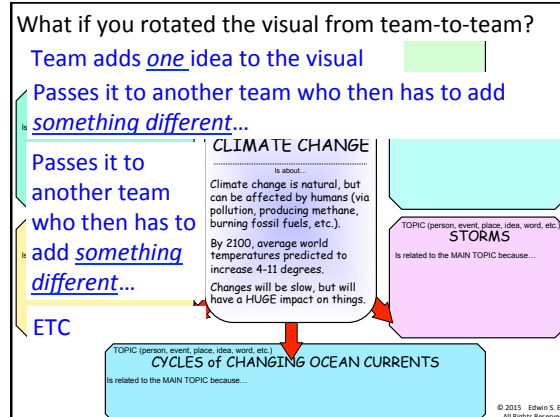
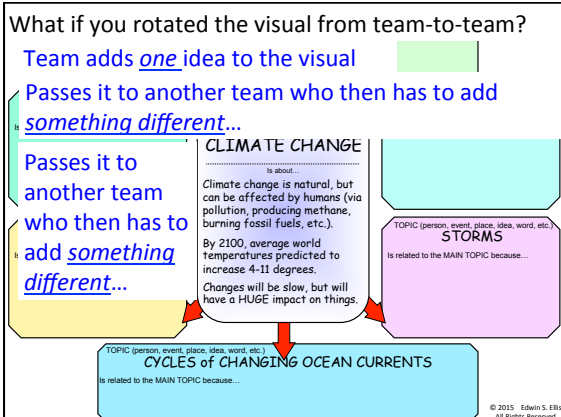


What if you rotated the visual from team-to-team?

Team adds one idea to the visual

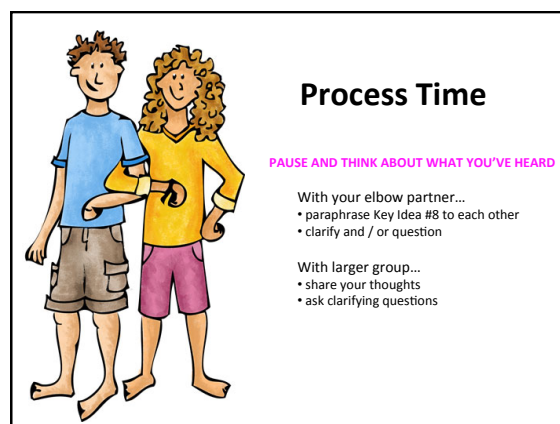
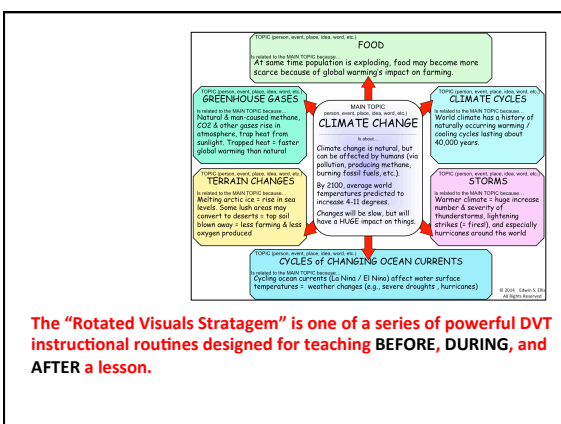
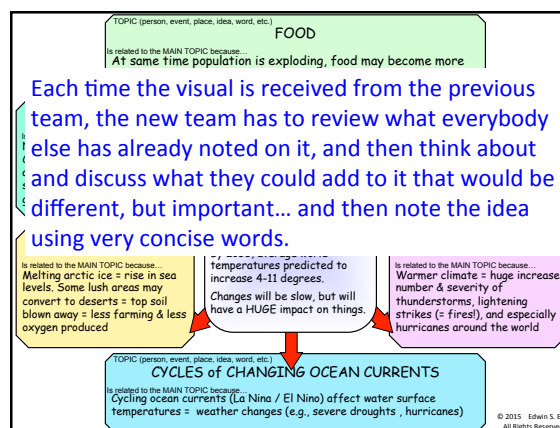
Passes it to another team who then has to add something different...






What if you rotated the visual from team-to-team?

Each time the visual is received from the previous team, the new team has to review what everybody else has already noted on it, and then think about and discuss what they could add to it that would be different, but important... and then note the idea using very concise words.



KEY IDEA #9  are based on extensive school-based scientific research

Bottom LINE?


DVTs have demonstrated effectiveness with

- * Low achieving students
- * Low achieving students with learning disabilities
- * Typical achieving students
- * High achieving students

DVT-based instruction raises test scores in low-, typical-, and high-performing schools

Teachers and students like and value DVTs - both groups view DVTs as teaching/learning tools that significantly **REDUCE COGNITIVE LOAD**

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KEY IDEA #9  are based on extensive school-based scientific research

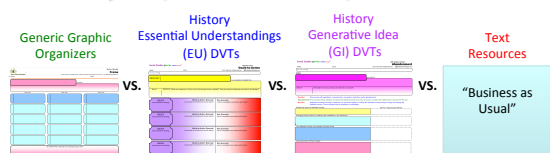
The following slides provide a brief overview of specific studies. To read more about DVT theoretical basis and research, see...

Ellis, E.S., Wills, S., & Deshler, D. (2011). Toward validation of the Genius Discipline-specific Literacy Model. *Journal of Education*, 191 (1), 13-32.

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KEY IDEA #9  are based on extensive school-based scientific research

This study compared the relative impact of....

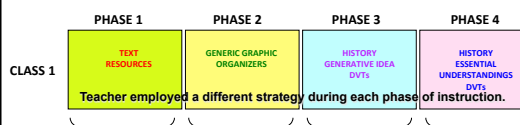


...on depth, breadth, and accuracy of new history knowledge

96 11th grade students...

32 high-achieving, 32 typical achieving, 16 low-achieving, & 16 low-achieving w/ LD

KEY IDEA #9  are based on extensive school-based scientific research



Pre & Post measures of students'

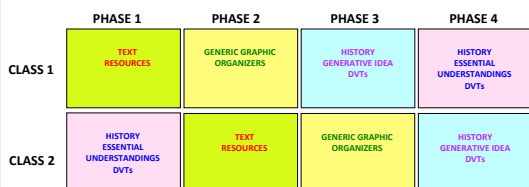
Breadth of knowledge

Depth of knowledge

Accuracy of knowledge

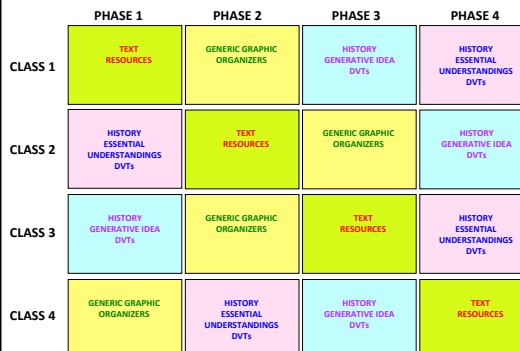
Learning measured for each phase

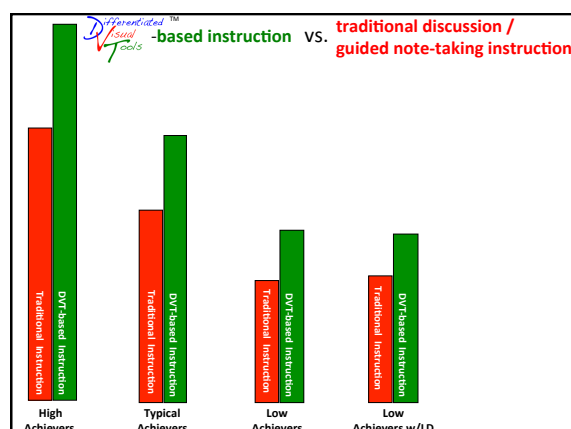
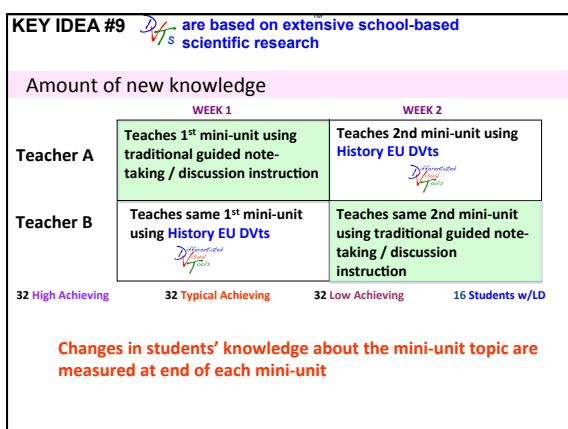
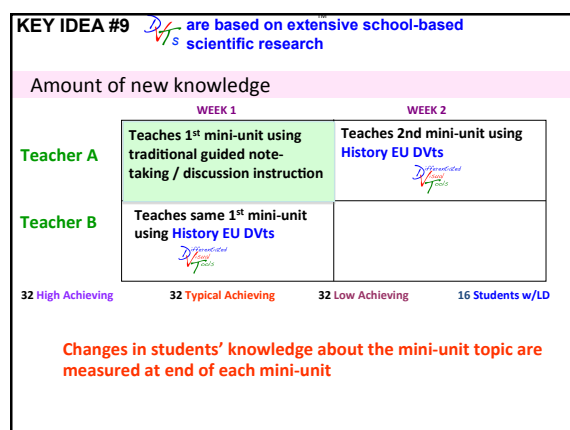
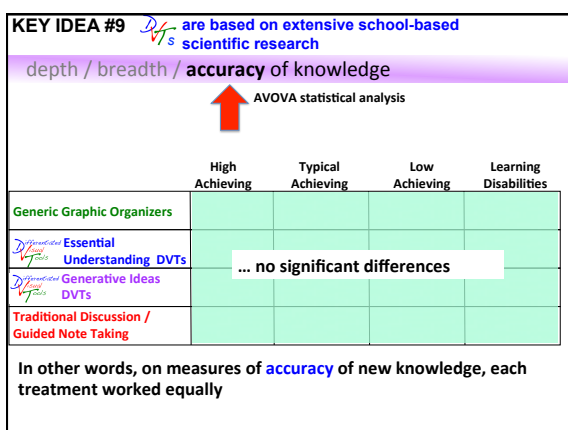
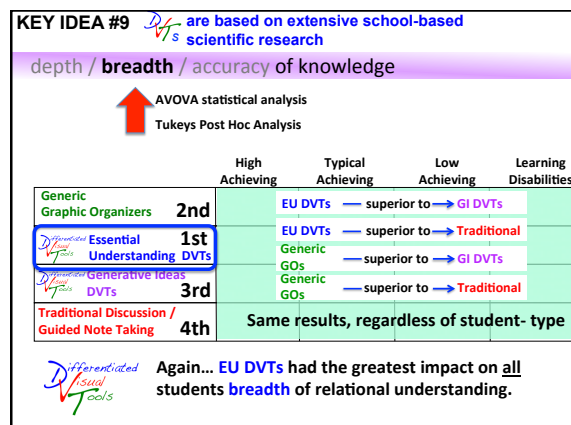
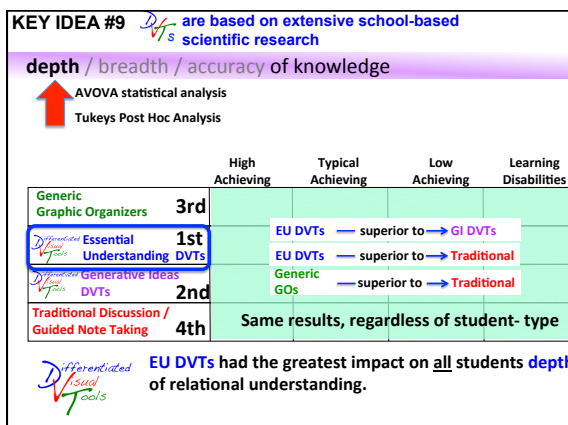
KEY IDEA #9  are based on extensive school-based scientific research

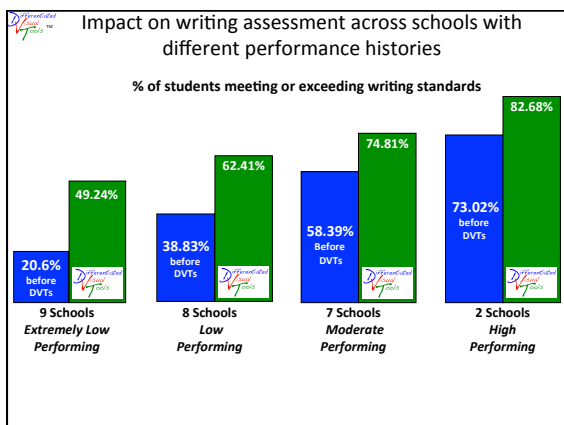


2nd teacher used same strategies, but in a different order

KEY IDEA #9  are based on extensive school-based scientific research



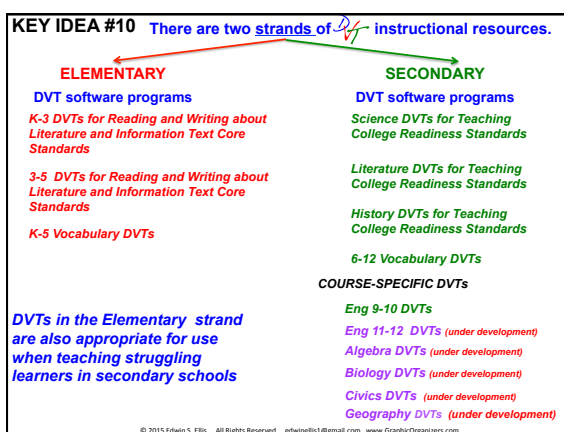




Semi-rural 5th grade Alabama Writing Assessment

% students meeting or exceeding standards

	Year 1 <i>Business-as-usual</i>	Year 2 <i>Business-as-usual</i>	Year 3 <i>Differentiated Visual Tools DVTs implementation</i>	Year 4 <i>Differentiated Visual Tools DVTs implementation</i>
School #1	36.1	28.08	51.43 + 23 pts.	81.0 + 30 pts.
School #2	22.0	10.0	62.24 + 52 pts.	71.0 + 9 pts.



Visualizing Disciplinary Thinking

10 KEY IDEAS about *Differentiated Visual Tools*

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University of Kansas Center for Research on Learning

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