Universal Design for Learning (UDL) with DI and RTI provide access to the General Education Curriculum

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Session Overview

What is Universal Design for Learning?

UDL and the relationship to brain research

UDL Guidelines

How UDL can provide access

Where DI and RTI fit in

Resources

http://cstl-coe.semo.edu/naguinaga/
Objectives

• Identify the principles of Universal Design for Learning

• Identify ways UDL can provide access to the general ed curriculum

• Implement several strategies based on UDL principles

• Identify the relationship of UDL with Differentiated Instruction and Response to Intervention
Universal Design Origin

Movement in architecture

Consider the needs of the broadest possible range of users from the beginning”
Architect, Ron Mace

Examples of Universal Design?

Universal Design for Learning (UDL)

CAST believes that
“barriers to learning are not, in fact, inherent in the capacities of learners, but instead arise in learners' interactions with inflexible educational goals, materials, methods, and assessments.”

Teaching Every Student in the Digital Age, p. vi
UDL

• A curriculum framework

• Flexible and supportive for all, not one-size fits all

• Decreases (unintentional) barriers that limit access

• Based on brain research

UDL Principles and Practice
UDL and the Learning Brain

Recognition networks: “the what of learning”

identify and interpret patterns of sound, light, taste, smell, and touch
Aoccdrnig to a rscheearch at Cmabrigde Uinervtisy, it deosn't mttaserin what oredr the ltteers in a word are, the olny iprmoetnt tihng is that the frist and Isat ltteer be at the rghit pclae. The rset can be a toatl mses and you can still raed it wouthit porbelm. This is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the word as a wlohe.

http://www.mrc-cbu.cam.ac.uk/people/matt.davis/home.html
UDL and the Learning Brain

Strategic networks:
“the how of learning”

plan, execute, and monitor actions and skills
UDL and the Learning Brain

Affective networks: “the why of learning”

Affective networks – located at core of brain

evaluate and set priorities
What we know about cognitive development

- One must **recognize** information, ideas, and concepts
- One must be able to **apply** strategies to process the information
- One must be **engaged**

*Vygotsky*
Universal Design for Learning

Multiple Means of ...

1. Representation
2. Engagement
3. Expression
To support recognition learning, provide multiple, flexible methods of presentation/representation.
To support strategic learning, provide *multiple*, *flexible methods* of *expression* and apprenticeship.
To support affective learning, provide multiple, flexible options for engagement.
Inflexible, one-size-fits-all curricula
— unintentional barriers to learning

Diversity is the norm, not the exception
Planning for Academic Diversity

Receptive Language
  Background Knowledge

Reading
  Decoding
  Comprehension

Ambulate
  Gross Motor Skills
  Fine Motor Skills

Expressive Language
  Written Expression

Diversity Blueprint

Memory
  Persistence

Problem Solving

Hard of Hearing
  Deaf

Low Vision
  Blind
Change is necessary

- Teaching to the middle leaves many behind
- Focus on the margins
- Create access
- Embrace technology
Recent changes in technology:

• Make it possible to communicate with more people than ever before
• Enable learning any time, any place, any how
• Facilitate personalization
• Promote participation in content, knowledge, and collaboration

UDL and Digital Media
Planning for Academic Diversity

• Beyond Google

• KidRex - kid safe search engine
  – http://www.kidrex.org/

• Internet4Classrooms – P-12 specific activities
  http://www.internet4classrooms.com/

• 42Explore – activities, discussion questions, webquests
  http://42explore.com/

• netTrekker- delivery of K-12 digital content, igotta, 14-day free trial
  http://www.nettrekker.com
Planning for Academic Diversity

• **4Teachers.org** - free service for teachers in public and non-profit schools, grades k-12, with sole funding provided by ALTEC at the University of Kansas
  
  [http://4teachers.org/](http://4teachers.org/)

• **Kathy Schrock’s Guide for Educators** – Discovery Education
  

• **Thinkfinity** – Interactive tools, Lesson Plans
  
Effective flexible technologies

- **Wikis** - free and ad-free, and you can make them private for extra security for your students
- **Podcasting** - Audacity® is free, open source software for recording and editing sounds
- **Google Docs** — create, share, collaborate on documents, spreadsheets and presentations online
- **Mimio (Smartboard)** — Interactive teaching technology
- **Inspiration** — Kidspiration, Webspiration for classrooms
- **Time for Kids** — Homework helper, research, writing help
- **Brain Pop** — animated content activities
- **Microsoft Word** and **Microsoft PowerPoint**
- **Blog** — Edublogs, Blogger
  - [http://jmundorf.edublogs.org](http://jmundorf.edublogs.org)
- **WYNN** — Talking Text – reading, writing, study support
Resources

• Microsoft Features

• Microsoft Accessibility tutorials

• UDL Guidelines handout
Principle I. Provide Multiple Means of Representation

Guideline 1: Provide options for perception

Checkpoint 1.1: Options that customize the display of information

Guideline 2: Provide options for language and symbols

Guideline 3: Provide options for comprehension

Source URL: http://www.udlcenter.org/implementation/examples
Principle II. Provide Multiple Means of Action and Expression

Guideline 4: Provide options for physical action

Checkpoint 4.1: Options in the mode of physical response

Guideline 5: Provide options for expressive skills and fluency

Guideline 6: Provide options for executive functions

Source URL: http://www.udlcenter.org/implementation/examples
Principle III. Provide Multiple Means of Engagement

Guideline 7: Provide options for recruiting interest

Checkpoint 7.1: Options that increase individual choice and autonomy

Guideline 8: Provide options for sustaining effort and persistence

Guideline 9: Provide options for self-regulation

Source URL: http://www.udlcenter.org/implementation/examples
Common Academic Tasks and Instructional Challenges

Read a chapter in a science textbook

- Deficits in background knowledge

- Below grade level reading skills

- Poor fluency and comprehension skills

- Difficulty with new vocabulary
Read a chapter in a science textbook
  – Scan textbook
  – Locate/create materials with audio support
    • StarChild
  – Search for alternative text source materials
    • How Things Work, Wikipedia, Textbook Revolution
  – Search for alternative media materials
    • BrainPop

UDL in Biology Video example
Planning for Academic Diversity

• Solve multi-step math problems

• Traditional chalkboard/paper/pencil AND/OR
  – Calculation Support
    • WebMath
  – Conceptual Support
    • Virtual Math Manipulatives
  – Visual Support
    • iKnowThat.com (More standards-aligned supplemental content - free trial available)
Center for Applied Special Technology (CAST) - nonprofit education R&D group
Define and promote innovative concepts of Universal Design for Learning (UDL).

**UDL Editions**

*Offers* classics from world literature like you've never seen them before -- in a flexible online interface that supports and engages novice and expert readers alike.

**Video**
Free online tools to make education more engaging and accessible for all.

1) **UDL BookBuilder** ([http://bookbuilder.cast.org](http://bookbuilder.cast.org)) is a free resource to help teachers and parents develop their own digital books to support reading instruction for children ages 3 and up. Enables users to create, edit, and save their own online books. Already universally designed – you just add content.

2) **CAST Strategy Tutor** ([http://cst.cast.org/](http://cst.cast.org/)) offers adolescent readers and their teachers customizable mentoring and support as they conduct Internet research and read websites.

3) **UDL Lesson Builder** ([http://lessonbuilder.cast.org](http://lessonbuilder.cast.org)) is a free online tool that helps educators build options and supports into their lessons to reach and engage all students.

4) **UDL Curriculum Self-Check** ([http://udlselfcheck.cast.org/](http://udlselfcheck.cast.org/)) provides an interactive tool to help educators identify areas of the curriculum where barriers may exist or more supports for diverse learners are needed.

5) **UDL Editions by CAST** ([http://udleditions.cast.org/](http://udleditions.cast.org/))
The flexibility of digital curriculum makes it easier than ever to adjust the challenge level of academic tasks. The concept of a volume control slider is a useful metaphor for describing the supports available in a universally designed learning environment. Tomlinson (1999) uses the term “equalizer” to discuss the concept of a slider.
Separate the goal from the means

Using a curriculum that is rooted in the 3 UDL principles,

Students have:

1. **Options** for how they learn
2. **Choices** which will engage their **interest**
3. **Choices** for how they **demonstrate** their learning

Teachers provide:

1. **Flexible** ways of presenting lesson content
2. **Flexible** options for student engagement
3. **Flexible** methods of expression and assessment

**Video example**
Getting from Here to There

UDL, Global Positioning Systems, and Lessons for Improving Education

http://www.udlcenter.org/resource_library/articles/gps
District Example

Plymouth-Canton Community Schools

– Technology Video Tutorials and Printable Guides
  technology installed in P-CCS' elementary and middle schools

– Examples of Accessible Technology

UDL Systematic Change Planner

UDL Training Toolkit for PD

Class Profile Maker - Handout
UDL is on the map in Washington

“Transforming Education”

“Systemic Change”

• U.S. Secretary of Education highlights UDL
  — Letter to Congress
  “The model of learning described in this plan calls for engaging and empowering personalized learning experiences for learners of all ages. The model stipulates that we focus what and how we teach to match what people need to know and how they learn. It calls for using state-of-the-art technology and Universal Design for Learning (UDL) concepts to enable, motivate, and inspire all students to achieve, regardless of background, languages, or disabilities. It calls for ensuring that our professional educators are well connected to the content and resources, data and information, and peers and experts they need to be highly effective. And it calls for leveraging the power of technology to support continuous and lifelong learning."
National Direction

**National Education Technology Plan**

**Karen Cator** - Director, Office of Education Technology
U.S. Department of Education

- The [Common Core State Standards Initiative](#) endorses UDL as a way to improve access to standards-based learning for all students.

**National UDL Task Force**

- Fact sheets, Briefs, Videos
A universally designed curriculum is shaped from the outset to meet the needs of the greatest number of users, making costly, time-consuming, and after-the-fact changes to the curriculum unnecessary.
What Is Differentiation?

- A teacher’s **response** to learner needs
- The **recognition** of students’ varying background knowledge and preferences
- Instruction that appeals to students’ differences
- Gives students multiple options for taking in information and making sense of ideas
Differentiated Instruction (DI)

In a differentiated classroom, teachers begin where their students are, not where they feel she should be or as the curriculum dictates.

Instruction methodologies vary and are adapted to meet the needs of individual and diverse learners.
But wait…
There’s More!
What Is Differentiation?

To differentiate instruction is to recognize students’ varying background knowledge, readiness, language, preferences in learning, and interests.

Differentiated instruction is a process of teaching and learning for students of differing abilities in the same classroom. The intent of differentiating instruction is to maximize each student's growth and individual success by meeting each student where he or she is and assisting in the learning process.

Hall, T., Differentiated Instruction : Effective Classroom Practices Report. 2002
Differentiated Instruction means...

“teachers proactively plan varied approaches to **what** students need to learn, **how they** will learn it, and/or how they will **show what they have learned** in order to increase the likelihood that each student will learn as much as he or she can, as efficiently as possible.”

http://www.differentiationcentral.com/whatisdi.html
Teachers Can Differentiate

According to Students’

Adapted from The Differentiated Classroom: Responding to the Needs of All Learners (Tomlinson, 1999).
Content...

What the student needs to learn or how the student will get access to the information:

- Using reading materials at varying readability levels;
- Putting text materials on tape;
- Using spelling or vocabulary lists at readiness levels of students;
- Presenting ideas through both auditory and visual means;
- Using reading buddies; and
- Meeting with small groups to re-teach an idea or skill for struggling learners, or to extend the thinking or skills of advanced learners.
Activities in which the student engages in order to make sense of or master the content:

• Using tiered activities through which all learners work with the same important understandings and skills, but proceed with different levels of support, challenge, or complexity;
• Providing interest centers that encourage students to explore subsets of the class topic of particular interest to them;
• Developing personal agendas (task lists written by the teacher and containing both in-common work for the whole class and work that addresses individual needs of learners) to be completed either during specified agenda time or as students complete other work early;
• Offering manipulatives or other hands-on supports for students who need them; and
• Varying the length of time a student may take to complete a task in order to provide additional support for a struggling learner or to encourage an advanced learner to pursue a topic in greater depth.
Culminating projects that ask the student to rehearse, apply, and extend what he or she has learned in a unit:

• Giving students options of how to express required learning (e.g., create a puppet show, write a letter, or develop a mural with labels);
• Using rubrics that match and extend students' varied skills levels;
• Allowing students to work alone or in small groups on their products; and
• Encouraging students to create their own product assignments as long as the assignments contain required elements.
Why differentiate by readiness, interest, and learning profile?

- Readiness → Growth
- Interest → Motivation
- Learning Profile → Efficiency
Guidelines for Planning Differentiated Instruction

KUD

Are you clear on what you want the students to:

– **Know** (facts, information),

– **Understand** (principles, generalizations, ideas, and

– Be able to **do** as a result of this/these learning experience(s)?
Examples of Differentiation Strategies

- Cubing
- Think Dots
- Think-Tac-Toe
- Menu Planner
- Tiered Activities
- Learning Contracts
- RAFT
Cubing

What Is Cubing?

• Cubing is an instructional strategy that asks students to consider a concept from a variety of different perspectives.
• The cubes are six-sided figures that have a different activity on each side of the cube.
• A student rolls the cube and does the activity that comes up.
• Cubes can also be used for group tasks as well as individual tasks.
How Cubing is Differentiated

- Not all students receive the same cube.
- You can differentiate the tasks on cubes according to readiness, interest, or learning profile.
- One cubing activity might group gifted learners for more challenging, higher-level activities; another cubing activity might group students with different readiness levels according to their interests; another might group students according to one of the learning profile categories.
Creating a Cubing Activity

Start by deciding which part of your unit lends itself to optional activities. Is it possible for you to make 3 Cubes for 3 different interests, levels, or topics?

First Step: (use one of the cubes)
- Write 6 questions that ask for information on the selected unit.
- Use the DOK levels, intelligence levels, or any of the cubing statements to design questions.
- Make questions that use these levels that probe the specifics of your unit.
- Keep one question opinion based – no right or wrong.

Second Step: (use other cubes)
- Use the first cube as your “average” cube, create 2 more using one as a lower level and one as a higher level.
- Remember all cubes need to cover the same type of questions, just geared to the level, don’t water down or make too busy!
- Label your cubes so you know which level of readiness you are addressing.
- Hand your partner the cubes and ask if they can tell high, medium, or low. If they can’t tell, adjust slightly.

Third Step:
- Always remember to have an easy problem on each cube and a hard one regardless the levels.
- Color code the cubes for easy identification and also if students change cubes for questions.
- Decide on the rules: Will the students be asked to do all 6 sides? Roll and do any 4 sides? Do any two questions on each of the 3 cubes?
Cubing

1. **Describe It**
   Look at the subject closely (perhaps with your senses in mind).

2. **Compare It**
   What is it similar to? What is it different from?

3. **Associate It**

4. **Analyze It**
   Tell how it is made. If you can’t really know, use your imagination.

5. **Apply It**
   Tell what you can do with it. How can it be used?

6. **Argue for It or Against It**
   Take a stand. Use any kind of reasoning you want—logical, silly, anywhere in between.
Cubing Example:

Cube
Cut out along the solid lines, and then score the dashed lines and fold back.
Toby Thurston 2004
First graders have been studying weather. They visit the Review Center at various times throughout the week as a way to review what they have learned about weather.

**Draw it**
Divide your paper into 4 sections. Label each section with a season and draw what the playground might look like.

**Associate it**
Choose one type of weather. Create a web with this weather in the Center. Write words in the bubble connecting to the center that describe how you feel when you see it.

**Compare it**
Choose 2 seasons. Use a Venn diagram to compare them.

**Describe it**
Work with a partner. Draw a card from the jar. Describe the weather type on the card so your partner can guess.

**Analyze it**
Work with a partner. Read a book about rain. Talk about why we need rain.

**Explain it**
Talk with a partner about your favorite type of weather.

Jessica Ramsey/2004
Adapted slightly from: http://www.mcps.k12.md.us/departments/eii/Cubing
ThinkDOTS

- After a conceptual unit has been presented and students are familiar with the ideas and associated skills, “Think DOTS” is an excellent activity for students to construct meaning for themselves about the concept they are studying. The instructor first defines readiness levels, interests, or learning styles in the class, using on-going assessment.

- Each student is given a set of activity cards on a ring, a die, and an activity sheet. Each student rolls the die and completes the activity on the card that corresponds to the dots thrown on the die. Each student then completes the activity on the activity sheet.
ThinkDOTS - Suggestions

• Use colored paper and/or colored dots to indicate different readiness levels, interests, or learning styles.
• Have students work in pairs.
• Let students choose which activities to complete – for example: roll the die and choose any three; create complex activities and have students choose just one to work on over a number of days.
• After students have worked on activity cards individually, have them come together in groups by levels, interest or learning style to synthesize.
For each readiness level, six activities should be created.

• On an 8 ½ x 11 inch page divided into six sections (this can be done easily on the computer by creating a 2 x 3 cell table and saving it as a template), the activities should be written or typed in each section.

• On the back of each page, dots corresponding to the dots on the faces of a die should be either drawn or affixed (you can use Avery adhesive dots) on each of the six sections of the page.

• The pages should be laminated for durability.

• Then each page should be cut into the six sections.

• Use a hole punch to make holes in one corner or in the top of each activity card.

• Use a metal or plastic ring to hold each set of six cards together.

• Create an Activity Sheet to correspond to the lesson for easy recording and management.
ThinkDOTS - Suggestions

• Use colored paper and/or colored dots to indicate different readiness levels, interests, or learning styles.
• Have students work in pairs.
• Let students choose which activities to complete – for example: roll the die and choose any three; create complex activities and have students choose just one to work on over a number of days.
• After students have worked on activity cards individually, have them come together in groups by levels, interest or learning style to synthesize.
Think Dots:  
Grade 2 Math  
*Students will tell and write time to the quarter hour, using analog and digital clock.*

*Think Dots Version 1: Time*

<table>
<thead>
<tr>
<th>●</th>
<th>●</th>
<th>●</th>
<th>●</th>
<th>●</th>
<th>●</th>
<th>●</th>
<th>●</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How many fives are in the number 60?</strong></td>
<td><strong>If it is 5:15pm, how many minutes after 5 is it?</strong></td>
<td><strong>How many minutes are in quarter after 2:00?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A soccer player has practice at 6:00pm. Draw what the clock face would look like if soccer practice were an hour and fifteen minutes.</strong></td>
<td><strong>How many minutes are in quarter till 3:00?</strong></td>
<td><strong>Create an interesting word problem using the times 4:00pm and 5:15pm.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dawn LaCassale
**Think Dots:**

**Grade 2 Math**

*Students will tell and write time to the quarter hour, using analog and digital clock.*

*Think Dots Version 2: Time*

<table>
<thead>
<tr>
<th>●</th>
<th>● ●</th>
<th>● ● ●</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain the similarities between quarter till and quarter after.</td>
<td>It is 4:15pm and dinner starts at 6:00pm. How many minutes until dinner?</td>
<td>Explain the difference between 5:15 and 5:45.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>● ●</th>
<th>● ●</th>
<th>● ● ●</th>
</tr>
</thead>
<tbody>
<tr>
<td>It’s 3:15 in Egypt. What do you think the people of Egypt are doing?</td>
<td>Create a word problem using the times 9:00pm and 7:00am.</td>
<td>Explain the difference between 12:00am and 12:00pm.</td>
</tr>
</tbody>
</table>
Think–Tac–Toe

• Think-Tac-Toe plays off the familiar childhood game. It is a simple way to give students alternative ways of exploring and expressing key ideas and using key skills.

• Typically, the Think-Tac-Toe grid has nine cells in it like a Tic-Tac-Toe game. The number of rows and cells can, of course, be adjusted.

Adapted from Fulfilling the Promise of the Differentiated Classroom, Carol Ann Tomlinson, ASCD 2003
Think–Tac–Toe

• As with related strategies, it is important that no matter which choices students make, they must grapple with the key ideas and use the keys skills central to the topic or area of study.

• In other words, whichever choices the student makes, he/she should be addressing the same KUDs as the others

Adapted from Fulfilling the Promise of the Differentiated Classroom, Carol Ann Tomlinson, ASCD 2003
<table>
<thead>
<tr>
<th>Think–Tac–Toe</th>
<th>Knowledge</th>
<th>Comprehension</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge</strong></td>
<td>list, define, tell, describe, identify, show, label, collect, examine, quote, name, who, when, where</td>
<td>summarize, describe, interpret, contrast, predict, associate, distinguish, estimate, discuss, extend</td>
<td>apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, relate, change, classify, experiment,</td>
</tr>
<tr>
<td><strong>Analysis</strong></td>
<td>analyze, separate, order, explain, connect, classify, arrange, divide, compare, select, explain, infer</td>
<td>combine, integrate, modify, rearrange, substitute, plan, create, design, invent, what if?, compose, formulate, prepare, generalize, rewrite</td>
<td></td>
</tr>
<tr>
<td><strong>Comprehension or Evaluation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Application or Evaluation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge or Analysis</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adapted from Fulfilling the Promise of the Differentiated Classroom, Carol Ann Tomlinson, ASCD 2003
<table>
<thead>
<tr>
<th>Draw a picture of the main character.</th>
<th>Perform a play that shows the conclusion of a story.</th>
<th>Write a song about one of the main events.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write a poem about two main events in the story.</td>
<td>Make a poster that shows the order of events in the story.</td>
<td>Dress up as your favorite character and perform a speech telling who you are.</td>
</tr>
<tr>
<td>Create a Venn diagram comparing and contrasting the introduction to the closing.</td>
<td>Write two paragraphs about the main character.</td>
<td>Write two paragraphs about the setting.</td>
</tr>
</tbody>
</table>

http://www.uwm.edu/~edyburn/tictactoe.html
## Think Tac Toe

### Ancient Civilizations – Grade 6

<table>
<thead>
<tr>
<th>GEOGRAPHY</th>
<th>IMPORTANT PEOPLE</th>
<th>CONTRIBUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>As an ancient mapmaker, you are commissioned to create a map of your land including all natural land forms, a compass rose and a scale. Also find examples of each land form in a modern civilization.</td>
<td>Assume you are persuading others to visit your ancient civilization. Design a descriptive, accurate travel brochure. Include both natural and man-made elements that would attract tourists.</td>
<td>Assume the identity of a famous person from the given time period. Create a journal entry reflecting the ideas, values, and components of daily life for that person &amp; you.</td>
</tr>
<tr>
<td>You are an ancient scribe. Write and illustrate a thorough description of a famous character from each time period being studied. Profile yourself also.</td>
<td>Assume the identity of a famous person from the given time period. Create a journal entry reflecting the ideas, values, and components of daily life for that person &amp; you.</td>
<td>You are a famous sculptor. Create a 3D representation of a well-known leader, god, goddess, or common citizen. Include a museum exhibit card.</td>
</tr>
<tr>
<td>Written language is an essential part of everyday life. Your task is to create an alphabet. Include a translation into modern English, a written description of the language development &amp; a 3D artifact of the new language.</td>
<td>Recreate in 3D form a famous work of architecture from your time period. Compare and contrast this piece to one piece of modern day architecture. Find one example of this architecture's presence in modern day society.</td>
<td>Find a way to explain and show the importance of music and the arts to your culture. Also show at least 2 examples with roots in our time.</td>
</tr>
</tbody>
</table>
## Adapted Think-Tac-Toe
### A Planet “Show & Tell”
*(Each student must pick one square from each horizontal row and use the two together)*

<table>
<thead>
<tr>
<th>Create One</th>
<th>Pick a Way to Explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use the computer to make a drawing that shows how the rotation and revolution of the Earth works to create day and night and seasons.</td>
<td>Make labels for the sun, Earth, day, night, orbit to attach to or use with your creation. Be ready to explain orally.</td>
</tr>
<tr>
<td>Paint a picture that shows how the rotation and revolution of the Earth works to create day and night and seasons.</td>
<td>Write sentences that identity and explain each part of your drawing or model and how each part works.</td>
</tr>
<tr>
<td>Construct a model that shows how the rotation and revolution of the Earth works to create day and night and seasons.</td>
<td>Write a story that explains the Earth’s rotation, revolution, day and night, and seasons.</td>
</tr>
<tr>
<td>Create a book or puppet show that shows how the rotation and revolution of the Earth works.</td>
<td>Write a poem that explains the Earth’s rotation, revolution, day and night and seasons.</td>
</tr>
</tbody>
</table>

Based on Unit by Bette Wood, Charlottesville, Virginia City Schools.
Diner Menu – Photosynthesis

**Appetizer (Everyone Shares)**
- Write the chemical equation for photosynthesis.

**Entrée (Select One)**
- Draw a picture that shows what happens during photosynthesis.
- Write two paragraphs about what happens during photosynthesis.
- Create a rap that explains what happens during photosynthesis.

**Side Dishes (Select at Least Two)**
- Define respiration, in writing.
- Compare photosynthesis to respiration using a Venn Diagram.
- Write a journal entry from the point of view of a green plant.
- With a partner, create and perform a skit that shows the differences between photosynthesis and respiration.

**Dessert (Optional)**
- Create a test to assess the teacher’s knowledge of photosynthesis.
<table>
<thead>
<tr>
<th></th>
<th>Beginning</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome/Objective</strong></td>
<td>Students will determine a topic and will write a five-sentence paragraph</td>
<td>Students will determine a topic, state a point of view, and write two</td>
<td>Students will determine a topic, state a point of view, and write an essay of at least five paragraphs that uses multiple sources to defend that point of view.</td>
</tr>
<tr>
<td></td>
<td>with a main idea, three supporting sentences, and a concluding sentence.</td>
<td>paragraphs defending that point of view.</td>
<td></td>
</tr>
<tr>
<td><strong>Instruction/Activity</strong></td>
<td>Students will receive a model of a five-sentence paragraph and explicit</td>
<td>Students will receive a model of a persuasive essay and a graphic organizer</td>
<td>Students will review the graphic organizer for a persuasive essay. Students will be given explicit instruction in locating sources and quotes</td>
</tr>
<tr>
<td></td>
<td>instruction in constructing the paragraph. As a prewriting activity,</td>
<td>that explains the construction of a persuasive essay. Students will also</td>
<td>for their essays. As a prewriting activity, students will use the graphic organizer to organize their essay. Students will also compile a</td>
</tr>
<tr>
<td></td>
<td>students will list their topic and develop a list of at least three</td>
<td>receive explicit instruction in writing a persuasive essay. As a prewriting</td>
<td>list of five sources that defend their main point.</td>
</tr>
<tr>
<td></td>
<td>things that support their topic.</td>
<td>activity, students will use the graphic organizer to plan their writing.</td>
<td></td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
<td>Students will be able to write a five-sentence paragraph that successfully</td>
<td>Students will be able to state a point of view and successfully defend the</td>
<td>Students will be able to write a five-paragraph essay that states a point of view, defends the point of view, and uses resources to support</td>
</tr>
<tr>
<td></td>
<td>states and supports a main idea. The paragraph will meet the criteria on</td>
<td>defend the idea using two paragraphs that defend the point of view using</td>
<td>the point of view. The essay will meet the criteria on the state writing rubric.</td>
</tr>
<tr>
<td></td>
<td>the state writing rubric.</td>
<td>main ideas and supporting details. The paragraphs will meet the criteria on</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>the state writing rubric.</td>
<td></td>
</tr>
</tbody>
</table>
Learning Contract #1

Name _______________________

My question or topic is:

To find out about my question or topic...

I will read:  I will look at and listen to:  I will write:

I will draw:  I will need:

Here’s how I will share what I know:

I will finish by this date:
Learning Contract #2

To demonstrate what I have learned about ____________________, I want to

_ Write a report
_ Put on a demonstration
_ Set up an experiment
_ Develop a computer presentation
_ Build a model
_ Design a mural
_ Write a song
_ Make a movie
_ Create a graphic organizer or diagram
_ Other ______________________

This will be a good way to demonstrate understanding of this concept because ____________________________________________________________

To do this project, I will need help with

________________________________________________________________

My Action Plan is __________________________________________________

The criteria/rubric which will be used to assess my final product is _________

________________________________________________________________

My project will be completed by this date _____________________________

Student signature: ________________________________________________ Date ___/___/___

Teacher signature: ________________________________________________ Date ___/___/___
So......
How Differentiated Instruction coordinates with UDL theory

Each of the three key elements of DI

- Content
- Process
- Product

supports an important UDL teaching method for individualized instruction
Recognition learning

• The content guidelines for differentiated instruction supports the first UDL Teaching Method for recognition networks, *provide multiple examples*, in that they encourage the use of several elements and materials to support instructional content.

• *provide multiple media and formats*

• *highlight critical features*

• *support background knowledge*
Strategic learning

• People find for themselves the most desirable method of learning strategies.
• Teaching methodologies need to be varied.
• Differentiated instruction can support these teaching methods in valuable ways.
  – flexible models of skilled performance
  – supported practice
  – flexible opportunities for demonstrating skill
Affective learning

• Engagement is a vital component of effective classroom management, organization, and instruction.
  
  – Offer choices of tools
  – Adjust the level of difficulty of the material
  – offer a choice of learning context

http://www.biertijd.com/mediaplayer/?itemid=16297
<table>
<thead>
<tr>
<th>UDL Teaching Method</th>
<th>Differentiated Instruction Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide multiple examples.</td>
<td>The teacher provides multiple examples through the story of <em>The King’s Chessboard</em> and other math problems.</td>
</tr>
<tr>
<td>Highlight critical features.</td>
<td>The teacher highlights critical features of the mathematics in the story by stopping and calculating the amount of rice accumulating and using a t-table to do so.</td>
</tr>
<tr>
<td>Provide multiple media and formats.</td>
<td>The teacher reads the story aloud and students have the story to read. The numbers are represented in the story and on the t-table.</td>
</tr>
<tr>
<td>Support background context.</td>
<td>Teachers analyze or pretest students for key preskills and background knowledge.</td>
</tr>
<tr>
<td>Provide ongoing, relevant feedback.</td>
<td>In cooperative groups, students may receive feedback from the teacher and from peers.</td>
</tr>
<tr>
<td>Offer choices of content and tools.</td>
<td>Students are assigned to one of three groups tiered by difficulty; all students are working on the same task but with varying supports.</td>
</tr>
<tr>
<td>Offer adjustable levels of challenge.</td>
<td>Varied supports in the working groups alter the level of independence and difficulty in solving the task.</td>
</tr>
</tbody>
</table>
Implementing UDL and Differentiated Instruction

• Look for existing resources/infrastructure.

• Start with one or two strategies.

• Try it and be willing to alter and extend.
Where does Response to Intervention fit in?

- A multi-tier approach to the early identification and support of students with learning and behavior needs.
- Begins with high-quality instruction and universal screening of all children in the general education classroom.
- Struggling learners are provided with interventions at increasing levels of intensity to accelerate their rate of learning.

**UDL HAS SUPPORTS BUILT IN**
RTI and UDL share the objective of improving educational outcomes

Both RTI and UDL

- recognize that poor achievement does not necessarily reflect disability, but rather may also reflect poor instruction
- Incorporate research-based practices
- reflect the understanding that a curriculum that is effective for one student may not be effective for another student
- RTI and UDL treat assessment as something that should inform instruction and intervention and consider once-a-year test scores insufficient to determine student ability
UDL, DI and RTI

• **PLAN** a change or action
• **DO** the change or action (on a small scale at first)
• **STUDY** the results to learn what did and did not work
• **ACT** by refining the idea or by implementing it on a broader scale
## Pulling it all together

<table>
<thead>
<tr>
<th></th>
<th><strong>UDL</strong></th>
<th><strong>DI</strong></th>
<th><strong>RTI</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What</strong></td>
<td>Recognition network - Multiple means of representation</td>
<td>Content</td>
<td>Curriculum</td>
</tr>
<tr>
<td><strong>How</strong></td>
<td>Strategic network - Multiple means of expression</td>
<td>Process</td>
<td>Instruction</td>
</tr>
<tr>
<td><strong>Why</strong></td>
<td>Affective network - Multiple means of engagement</td>
<td>Product</td>
<td>Learning</td>
</tr>
</tbody>
</table>
"UDL is really a merging of general education and special education, a sharing of responsibility, resources and ownership. It gets away from the "their kids/our kids" divide between general ed. and special ed." –

David Rose

*A Practical Reader in Universal Design for Learning*
Anticipate Differences

- Fundamental characteristic of UDL

- Plan for instruction for students who may be non-verbal, cognitively impaired, blind, deaf, struggling readers, reluctant writers, unmotivated, non-native English speakers, or gifted/talented.

- Rather than creating a single instructional plan (i.e., one size fits all curriculum), plan a variety of learning activities to enable all students to achieve the given goals in the time allocated for instruction

**Implementing UDL**
Designers of learning environments

Facilitators of learning

Technology Changes Instructional Design

• From instruction to discovery

• From individual to collaborative learning

• From broadcast to interactive learning

• From teacher-centric to student-centric

The goal of education

- Not simply the mastery of knowledge
- It is the **mastery of learning**
- Education should help turn novice learners into **expert learners**
- Develop individuals who know how to learn, who want to learn, and who, in their own highly individual ways, are well prepared for a **lifetime of learning**
Where Do I Go From Here?

CAST – Center for Applied Special Technology
www.cast.org

National Center on Accessing the General Curriculum (NCAC)

Access Center:
www.k8accesscenter.org

Free Technology Toolkit for UDL in All Classrooms
http://udltechtoolkit.wikispaces.com/

IRIS Center at http://iris.peabody.vanderbilt.edu
Introduction to Livescribe

The SmartPen: How does it work?
Introducing Livescribe's Newest Smartpen

With a sleek new design and enhanced features, the Echo smartpen is Livescribe's most powerful and easy to use smartpen yet.

- **Micro-USB Connector**: Transfers notes and audio to your computer and recharges your smartpen using a standard cable connection.
- **Audio Jack**: Standard 3.5mm jack fits your own earphones or the Echo 3-D Recording Premium Headset to enable binaural recording.
- **Microphone**: Capture your meetings or lectures with crisp clear sound.
- **OLED Display**: High-contrast OLED display makes it easy to navigate smartpen apps.
- **Built-in Speaker**: Built-in speaker produces rich full sound to play back your recorded audio.
- **Memory Storage**: Holds 400 or 800 hours of recorded audio. (4GB and 8GB models available)
- **Soft Rubber Grip**: The new ergonomic design and soft rubber grip provide comfort while writing.
- **Replaceable Ink Tip**: Simply remove the ink cartridge with your fingers and insert a new one.

Learn More

How to Get Started

Livescribe's Original Smartpen

Learn more >
Blackboard Discussion 2-17-09

Current:
- Bb 7.3
- upgrade summer to Bb 9
- includes Community + Content

Anthony Cyplik

Melissa Anderson

Outcomes / Data Assessment:
Background
Echo Smart Pen

Teaching is not an easy task. There are standards to be met. Data and information to be collected, assessed and shared. Prodigious efforts made to help students excel in an era of information overload.

Districts across the country are using the Livescribe smartpens to transform the learning experience. Students are better equipped to actively learn and engage in the classroom. Teachers can create more effective lesson plans and instruction. Administrators benefit from more effective method for data collection and knowledge sharing.

Echo Smart Pen

Teachers are using the Echo Smartpen for:
• Learning center activities
• Oral book reports
• Running record fluency
• Talking tests
• Talking word walls

## Thinking It Over

<table>
<thead>
<tr>
<th>Aha’s!!</th>
<th>Huh??</th>
</tr>
</thead>
<tbody>
<tr>
<td>What did I learn?</td>
<td></td>
</tr>
<tr>
<td>Why did I learn it?</td>
<td></td>
</tr>
<tr>
<td>How can I use it?</td>
<td></td>
</tr>
</tbody>
</table>
These ideas square with my beliefs.

3 points I want to remember.

These are the ideas that are going around in my head.

Some of the ideas I am leaving here with today are.....

This made me wiggle in my seat.
Maxwell Maltz, author of Psycho-cybernetics

“It takes 21 days to form a habit.”
Questions?

Thank you!

Be green and prosper