



Teachers' Desk Reference: Practical Information for Pennsylvania's Teachers

Universal Design for Learning

As a Pennsylvania educator, you are challenged to teach varied learners to high standards. In your classroom, learners are more diverse than ever. A single classroom may include:

- Students who have a learning disability
- Students with emotional or behavioral problems that interfere with their concentration
- Students who are English Language Learners
- Students who struggle to learn due to a cognitive disability
- Students who appeared disinterested or not engaged
- Students with sensory or physical disabilities

For your students to be successful, you must be able to respond to their individual differences; and, therefore, you require alternative methods of meeting the needs of all students in your classroom.

The UDL Approach

Universal Design for Learning (UDL) is an approach to designing curriculum and learning experiences so that all students can be successful. It originated from the concept of Universal Design found in architecture.

Universally-designed environments have features that minimize or remove barriers and allow access for all possible users. For example, ramps and curb-cuts are used by people pushing strollers or pulling luggage, those with temporary injuries, individuals who use wheelchairs or motorized scooters, and even some who may simply prefer ramps to steps.

A UDL approach to education assumes that students with varying needs will be actively engaged in learning, and that the curriculum, the goals, the instructional methods, the instructional materials, and the assessments address this diversity. UDL draws on brain research and media technologies to respond to individual learner differences. However, universal does not mean "one size fits all." This approach is about providing flexibility and alternatives to teaching, learning, and assessment. Therefore:

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- **Universal** means to include or cover all or a whole collectively or distributively, without limit or exception.
- **Design** means to devise for a specific function or end, that is, to begin with the end in mind.

To reach each and every student, teachers must customize their lessons using flexible tools, teaching methods, and assessments. This means building in flexibility at the beginning of planning by anticipating the needs of all students, rather than retrofitting to adapt and remove barriers that may have been unintentionally constructed.

UDL Principles and Guidelines

UDL principles, developed by the Center for Applied Special Technology (CAST)*, are based on the neuroscience of learner differences and research on effective instruction. They call for varied and flexible ways to:

- Represent or access academic content (the “what” of learning),
- Plan and execute learning tasks, including expression (the “how” of learning), and

- Become and stay engaged in learning (the “why” of learning)

Using these principles, CAST has further developed practical UDL Guidelines (see Figure 1) to assist educators in designing curricular materials, methods, and assessments that address the needs of increasingly diverse learners.

UDL in the Classroom

When planning lessons, think first about the expectations for all students:

- What are the desired outcomes?
- What classroom-based assessment is planned?
- Which UDL principles will be used in designing instruction?

Figure 1. UDL Guidelines

To build in multiple means of:	Allow students to:	Some examples:
<i>Representation</i>	Interact with content in flexible ways	<ul style="list-style-type: none"> • Alternatives to auditory or visual information • Text to speech or interactive scaffolds • Means to activate background knowledge • Multiple entry points into a lesson
<i>Action and Expression</i>	Provide flexible options to show what they know	<ul style="list-style-type: none"> • Offer options in mode of physical response • Allow options of tools for composition or problem solving like spellcheckers, or calculators • Provide differentiated models or mentors
<i>Engagement</i>	Provide options to stimulate student interest and motivation for learning	<ul style="list-style-type: none"> • Provide choices in context, rewards, sequence or level of challenge. • Vary activities and sources of information to personalize, or make culturally or socially relevant. • Offer options for goal-setting or self-monitoring

Adapted from information found at National Center for UDL website. For more information go to www.udlcenter.org/aboutudl/udlguidelines.

* CAST (www.cast.org) is a nonprofit research and development organization that works to expand learning opportunities for all individuals, especially those with disabilities, through Universal Design for Learning.

Then, consider needs of individual students who may be in the classroom:

- Which outcomes will be prioritized for direct instruction and monitoring?
- What supports and strategies are needed to address barriers?
- What will formative assessment look like?

More Information About UDL

Implementation of UDL will reflect the diversity of the students, curriculum, and environments involved. Because there is not one correct way to implement UDL, educators should take advantage of a variety of web resources that illustrate the possibilities in UDL. Explore the CAST website at www.cast.org and the National Center on UDL website at www.udlcenter.org. Videos from the National Center on UDL screening room provide a variety of examples of lessons in the classroom at varied levels. They also include a helpful discussion of how the UDL Guidelines were used in the lesson. The instructional strategies will be familiar to most teachers. The rationale for how these strategies, in combination, address the varied needs of the students in the classroom demonstrates the power of UDL in designing lessons.

When teachers provide:

- Flexible ways of presenting content
- Flexible methods of expression and assessment
- Flexible options for student engagement

Then students have:

- Options for how they receive content
- Options for how they demonstrate their learning
- Choices that will engage interest and sustain effort

Brain Research

Neuroscience shows us that each brain processes information differently. The way we learn is as different as our fingertips or our DNA, yet it also shows us the similarities. Research and practice in education, psychology, and neuroscience has shown that learning uses three brain networks: recognition, strategic, and affective.

Recognition Networks

Gathering facts. How we identify and categorize what we see, hear, and read. Identifying letters, words, or an author's style are recognition tasks—the "what" of learning.

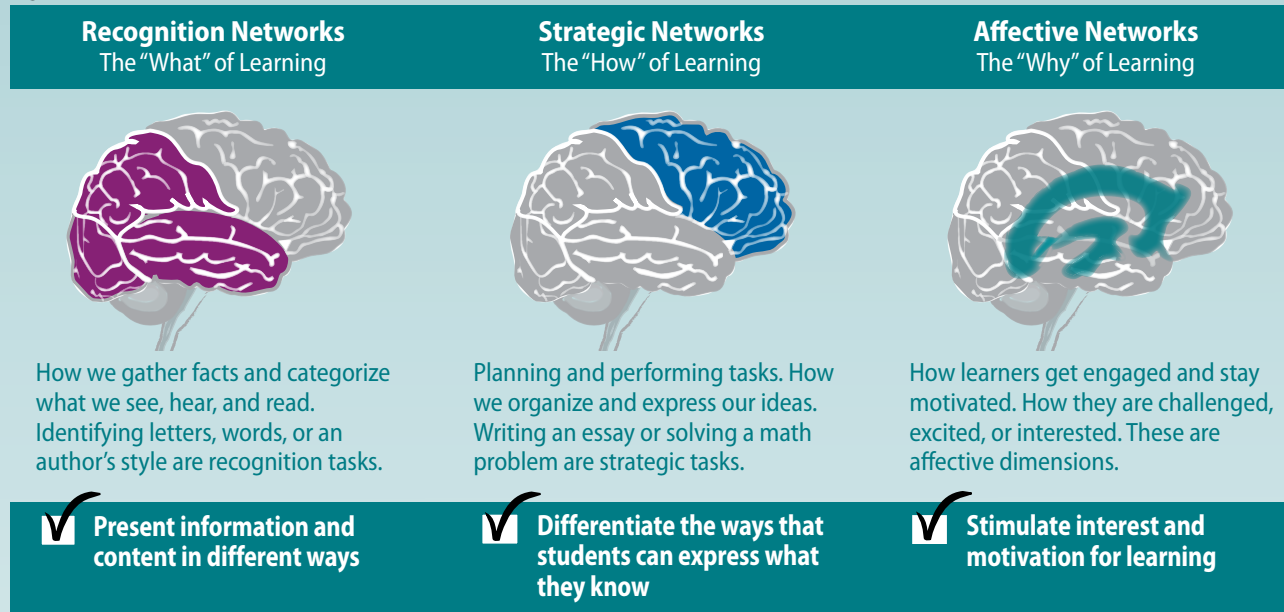
Strategic Networks

Planning and performing tasks. How we organize and express our ideas. Writing an essay or solving a math problem are strategic tasks—the "how" of learning.

Affective Networks

How students are engaged and motivated. How they are challenged, excited, or interested. These are affective dimensions—the "why" of learning.

Figure 2. Brain Networks



CAST. (2011). *Universal Design for Learning Guidelines version 2.0*. Wakefield, MA: David H. Rose, Ed.D.

What does this look like in practice? Teachers need to provide alternative formats for presenting information to their students which addresses **what** we learn. This allows students to interact with content in flexible ways. This may include:

- Providing multiple examples
- Highlighting critical features
- Providing multiple media and formats
- Supporting background context

To address the **how** of learning, teachers need to provide alternative means for action and expression. This allows students flexibility in demonstrating what they know or understand, such as:

- Providing flexible models of skilled performance
- Providing opportunities to practice with supports
- Providing ongoing, relevant feedback

- Offering flexible opportunities for demonstrating skill

Finally, providing alternative means for engaging students to tap into **why** we learn. This includes giving options for stimulating student interest and motivation for learning, including:

- Offering choices of content and tools
- Offering adjustable levels of challenge
- Offering choices of rewards
- Offering choices of learning context

The organization of the brain supports this division as well. The back side of the cortex is specialized to recognize pattern, identify, and classify – to take in information and concepts; the front of the brain is specialized to make and execute plans and motor movements, to develop and apply strategies; and the center of the brain, the limbic system, is the home of affect and emotion. These three facets of learning – **what, how, why** – are used in UDL to derive principles to guide curriculum design and teaching.

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