

What are KUDs?

We at the Institutes on Academic Diversity are convinced that the foundation for powerful differentiated curriculum and instruction is high-quality curriculum. One of the keystones in the development of high-quality curriculum is that teachers clearly articulate what they want students to **K**now, **U**nderstand, and be able to **D**o as a result of a unit or lesson. These KUDs are the learning goals that guide curriculum development, frame lessons or units, and anchor the assessments and learning activities.

Writing Clear KUD Learning Goals

The crafting of KUDs is a skill set that takes time and practice to develop. When developing KUD learning goals, we recommend collaboration with like-minded colleagues. This will provide the think-tank spirit that can help you refine your KUDs so that they provide the platform necessary for powerful differentiated curriculum and instruction.

In the spirit of collaboration, we've provided a selection of well-written KUDs written by teachers and other educational professionals so that you can get that big, "Aha, so this is how KUDs might look," insight.

Primary	
Grade Level, Discipline, & Author	Sample KUD Goals
Preschool Unit on Plants by Alice Wiggins	<p>Unit Big Idea (Plants) Plants have different parts that work together to help them live.</p> <p>Students will know:</p> <ul style="list-style-type: none">• Vocabulary related to plants <p>Students will understand that:</p> <ul style="list-style-type: none">• Plants are living things.• There are many different kinds of plants.• Plants have different parts.• Plants need certain conditions to grow.• Plants go through stages as they grow. <p>Students will be able to:</p> <ul style="list-style-type: none">• II-SC1.11 Plant, care for & record observations of a plant, noting the parts of the plant, needs, development & life cycle.• II-SC4.1 Demonstrate use of the scientific reasoning cycle.• I-SR1.1a Attend and listen to illustrated picture books with simple story lines.• I-SR1.3 Find the illustration, or object within the illustration of a book, that is being described.• I-OL9.23 Ask or answer questions beginning with who, what, where, when, why.

Elementary

<i>Grade Level, Discipline, & Author</i>	<i>Sample KUD Goals</i>
<p>Fifth Grade Science Unit, “Investigating Cells” by Shelby Bowen</p>	<p>Unit Big Ideas: Perspectives/Change Changes in perspective can give us new information about the world around us.</p> <p>The student will understand that:</p> <ul style="list-style-type: none"> • Scientists use different perspectives to study living things, both large and small • Scientists use tools to help them to change perspectives. <p>The student will know:</p> <ul style="list-style-type: none"> • Microscopic cells are the building blocks of all living things • The similarities and differences of plant and animal cells <p>The student will be able to:</p> <ul style="list-style-type: none"> • Make observations using the senses • Gather and analyze data • Make inferences • Make predictions • Develop questions • Develop hypotheses • Investigate objects with a microscope • Compare and contrast characteristics • Classify according to characteristics • Make scientific models • Use the language of the discipline to communicate for a variety of purposes in a variety of formats and for a variety of audiences.
<p>Second Grade Social Studies Lesson on Native Americans by Kaylen Baker, Sarah Henry, & Leslie Neely</p>	<p><u>Objectives</u></p> <p>Students will know:</p> <ul style="list-style-type: none"> • The definitions of environment, regions, and natural resources • The geographical regions that each of the three Native American tribes lived in • Examples of natural resources in each region and how they were used <p>Students will understand:</p> <ul style="list-style-type: none"> • Environmental factors affect the lives of all people because of the varying natural resources that all environments possess. <p>Students will be able to do:</p> <ul style="list-style-type: none"> • Compare and contrast how the environment has affected each of the three Native American groups • Explain how the environment affects our lives today • Identify what aspects of the Native Americans’ lives were affected by the environment

<p>Fourth Grade English/Language Arts Lesson on Poetry by Kaliegh Klemm</p>	<p><u>Objectives</u></p> <p>Students will know:</p> <ul style="list-style-type: none"> • The rules and forms that follow the types of poetry studied throughout the unit. • The terms for various poetic elements and how they are used in poetry. <p>Students will understand:</p> <ul style="list-style-type: none"> • That poets use a variety of poetic forms and elements to adequately express their ideas, thoughts, and observations. <p>Students will be able to do:</p> <ul style="list-style-type: none"> • Correctly utilize a variety of poetic forms as a form of expression.
<p>Fifth Grade Math Lesson on Area, "Landscape Architecture," by Jennifer Kumpost</p>	<p>I want students to understand that:</p> <ul style="list-style-type: none"> • Mathematicians and landscape architects use scale models to represent real world scenarios. • Changing the dimensions of a shape affects the surface area of that shape. <p>I want students to know:</p> <ul style="list-style-type: none"> • The corresponding formulas to calculate the area of rectangles and squares. <p>I want students to be able to:</p> <ul style="list-style-type: none"> • Represent area to scale on grid paper. • Use area formulas to calculate the area of rectangles and squares. • Recalculate the area of a rectangle and/or square after one or both of the dimensions have been changed.

Understanding the “Understands” in KUDs

By Jennifer N. Kumpost

Clear Learning Goals

In order to differentiate curriculum effectively, it is crucial that our learning goals are crystal clear. Dr. Carol Tomlinson recommends that learning goals be stated in a **KUD** format, that we articulate our goals in terms of what we want students to **Know**, **Understand**, and be able to **Do** as a result of a lesson or unit of study. The “Know” goals represent facts and procedural knowledge such as know the steps in solving the quadratic equation or

know the names and locations of all continents and major bodies of water. The “Do” goals represent skills and are transferable to other contexts such as: write persuasively for a given topic and specified audience, or compare and contrast similarities and differences of two civilizations. The “Understand” goals are also known as “big ideas,” “essential understandings,” or generalizations, and represent ideas that are transferable to other contexts (e.g.

time, cultures, situations). Understand goals are the expansive ideas that frame the details, providing the answers to the questions “So what? Who cares?” of why we study the things we study. We would expect to see two or more concepts in each generalization or “Understand,” and all facts and skills (i.e. Knows and Dos) should help students “unpack” these big ideas.

What do you mean by “unpacking” big ideas?

Imagine traveling with all your belongings, only without the suitcase! What a nightmare, right? You’d never be able to keep track of all your items; in fact, you’d probably end up losing most of it along the way! Facts and skills without focusing big ideas work in the same way – we lose them if we don’t have our “suitcases” as we go along.

Seasoned travelers have had traveling experiences and memories that provide us with a sense of why suitcases are important for a journey, what types of traveling situations would impact the type of bag we may choose to use, and what specific things might be found within a suitcase given the context (i.e. our travel plans).

Yet, what about the novice traveler? The novice may not know what types of items one might choose to put in a carry-on bag versus a checked bag, or the skill of choosing when to select

which of those bags or certain items for a given trip. Unpacking a given suitcase would go a long way in helping the new traveler understand further why and in what ways the suitcase is important for a given journey.

The “Understand” goals operate as the “suitcase” within the KUDs, and the facts and skills are all the items we put into the suitcase. For instance, if you lined three identical carry-on bags side-by-side, and unpacked all of them, you would have a good idea as to the basic purpose of a carry-on bag. Obviously, the differences between the bags of a business woman traveling to give a presentation, a grandparent attending his grandson’s first birthday party, and a college student traveling home for fall break would be none too subtle; yet, I imagine we might be able to make a generalization about carry-on suitcases as well. After unpacking those bags, we might conclude that carry-on travel bags contain items that meet the needs of trav-

elers for a limited amount of time.

This illustration mirrors, at a basic level, the relationship between the “Understand” and the “Know” and “Do” goals in KUDs. While we might use an understand goal for a variety of different destinations, we will “pack” that understand goal with different knowledge and skills to provide students with a context. Our learning activities will then use those facts and skills to help students “unpack” the big ideas in order to get a broader, more transferable, and lasting understanding of the topics they study.



So now that I have the gist of what an Understand goal is and why it’s important, how do I begin writing them?

Writing big ideas will never follow a formula; rather, it’s an iterative, reflective, transformative process – and that’s a good thing! Let’s take a look at some common challenge areas for teachers and some suggestions for how to go about constructing Understand goals for a unit or lesson.

Grade & Discipline	Typical Challenge for Teachers	Thinking About the Big Idea...
<p>Middle School Math</p>	<p>I want to revise the learning goals for my geometry unit. I’m trying to address the following Virginia state standard for seventh grade math:</p> <p>Geometry Focus: Relationships between Figures 7.7 The student will compare and contrast the following quadrilaterals based on properties: parallelogram, rectangle, square, rhombus, and trapezoid.</p> <p>How can I construct big ideas that will provide a cohesive frame for my unit?</p>	<p><i>Think about the ultimate use and purpose of knowing the properties of figures. We know that mathematicians classify figures based on a set of agreed-upon properties. Why do mathematicians classify geometric figures? Why is it really important for us to classify and figures? Who cares? What relevance does this hold for students? Why should they really care about what properties a given figure has?</i></p> <p><i>The beauty of math is that it’s the discipline that helps us interpret the world around us. Comparing and contrasting might seem to imply that there are differences and similarities. When we understand the differences and similarities of shapes, when we know their unique properties, then we can begin to solve problems, make interpretations, justify our own positions. Consider the following big idea:</i></p> <p>Application of the properties of geometric figures are often used to solve problems.</p>
<p>Primary Science</p>	<p>I teach kindergarten and every year I teach a unit about the five senses. The VA Standard of Learning from the kindergarten science document indicates that students should be able to “investigate and understand that humans have senses that allow one to seek, find, take in, and react or respond to information in order to learn about one’s surroundings.” How can I come up with a good essential understanding that is kindergarten student-friendly?</p>	<p><i>A HUGE and foundational understanding for science is that organisms interact with the environment. Think about how this reflects the animal habitats for primary grades, plant and animal adaptations for upper elementary, even anatomy and physiology high school students grapple with a more sophisticated version of this. Take a look at the state standard; it seems to reflect this big idea. The question is, how can we write a big idea that allows us to help students make connections? Consider the following:</i></p> <p>The five senses help humans interact with the environment.</p> <p><i>While the concepts “interact” and “environment” may seem advanced for kindergarteners, they also provide a great springboard for transfer. You may first have to help students “unpack” these concepts first, but this will lay the groundwork for some exciting differentiation options.</i></p>
<p>Upper Elementary Social Studies</p>	<p>Every year we do a show-stopping unit on Westward Expansion in fifth grade. After talking with my fellow fifth grade teachers about our reflections on the last three years of doing this unit, we all came to the same conclusions. No matter how hands-on and fun the activities seem to be, students just don’t remember any of the important information. We think it might be because the only focus is on the them “Westward Expansion,” and students just can’t connect to all the different people and events that are a part of the unit. Help! How can we rethink our planning on this unit with a focusing “Understand” goal to go along with all the facts?</p>	<p><i>It would seem that you and your colleagues have discovered how very important “Understand” goals are in the learning process!</i></p> <p><i>So let’s think about why, in classrooms all over the nations, every year, for most fifth graders, we think it’s so important to learn about Westward Expansion. What can history teach us from this particular time? How can fifth grade students understand who they are and the shoes they have to fill in this society through this unit? Some universal ideas here are change, migration, development, and needs. You might include one or more of the following in the unit:</i></p> <ul style="list-style-type: none"> - Society’s need for development often creates changes in values. - Humans migrate to meet a variety of needs (Erickson, 2009).
<p>High School Language Arts</p>	<p>As a part of a book-study unit, we are currently reading “Into the Wild” by Jon Krakauer. I want students to get more out of this book than just enjoying a compelling story; my hope is that students begin to reflect on their own identities and characters, connecting with and responding to the text. I suspect that I have to go beyond the theme of “identity” to do this, but am having trouble getting started. What are some suggestions for generalizations that I can guide students to “unpack” using this text?</p>	<p><i>Reading and responding to literature is a vital part of reader’s craft. There are several approaches you might consider. “Identity” is a highly transferable concept that you could weave into your big idea. What is it about identity and text that you want students to explore? This book is based on a true story, but could that concept be transferable to fiction texts? Perhaps your unit might help students understand that:</i></p> <p>The need to define identity is often explored through literature, and a reader’s investigation of text characters often leads to a personal understanding of identity development.</p>

“Without understanding, there is no durable learning—no retention, no transfer, no capacity to think about content. And without understanding, there is little relevance to curriculum.”
- Carol Tomlinson

Okay, I’m feeling pretty confident that I’ll be able to write big ideas, but how would I use them with students?

Thinking, developing, and writing essential understandings is a process for teachers, a way to be more intentional about why we are teaching what we are teaching. Ultimately, we want to help students start arriving at and constructing this type of thinking. Our goal is not to spoon feed the “Understand” goals to them by giving it to them. No, we want to structure activities and scaffold the learning experiences in such a way that students arrive at the generalization in their own thinking. The facts and skills we develop should be used to help them “unpack” and arrive at the same conclusions that we came to in our own thinking and planning.

One way a teacher might help scaffold students’ thinking is to

have a debrief time worked into the end of each day or class period. Asking students to think about that day’s activity or experiment, lesson or research in terms of the bigger picture.

“How does this fit with what we’ve been learning?” “Is there some generalization or big idea we could make about ____?”

“Do we need to make modifications about our generalizations we came up with yesterday?”

“What happened today that made you think these modifications were necessary?” “Given our revised generalization, what might we expect to see in a situation such as _____?”

Post these revised generalizations (elementary teachers could tell you a thing or two about anchor chart paper and its utility for moments like this) and keep

referring students back to them. At the end of the unit you might have students write an essay, make a presentation, or create a project that answers a question meant to assess their understanding of the “Understand” learning goal, supported by – you guessed it – all the content, etc you listed in your “Know” and “Do” learning goals.

Recommended Professional Reading:

- **Concept-Based Curriculum and Instruction for the Thinking Classroom** (2007)
by H. Lynn Erickson
- **Understanding by Design, Expanded Second Edition** (2005)
by Grant Wiggins and Jay McTighe
- **The Parallel Curriculum: A Design to Develop Learner Potential and Challenge Advanced Learners** (2008)
by Carol Ann Tomlinson

*Lear more about “Understands” or big ideas and grow in your understanding of **differentiated instruction** at our fall differentiation conference, with leading expert, Carol Tomlinson.*

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