

# ACE

## Planning Guide:

Practices that Support Student Learning

Written for ACE Teachers by M.Ed. Faculty  
Alliance for Catholic Education  
University of Notre Dame





# ACE PLANNING GUIDE:

## PRACTICES THAT SUPPORT STUDENT LEARNING

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## Dedication



Dedicated to Thomas 'Doc' Doyle who began working with ACE Teaching Fellows in 1996 and served as Academic Director from 2002-2014.

As a high school teacher and later as a Principal, Thomas 'Doc' Doyle noted that some classes lacked focus. Content was plentiful but content development was not always purposeful. When Doyle started working with ACE in 1996 he began to further explore the idea that planning could become more focused and by the time he became ACE's Academic Director (2002-2014) Doyle decided that in conjunction with ACE's faculty and graduate students he could write a planning guide that would lend focus to purposeful classroom instruction and a consistent language to the ACE Teacher's M.Ed. planning.

This book is a continuation of that idea and is written in conjunction with current M.Ed. faculty. It contains references to his earlier work and is supported by contemporary research and with examples from recent graduate students.

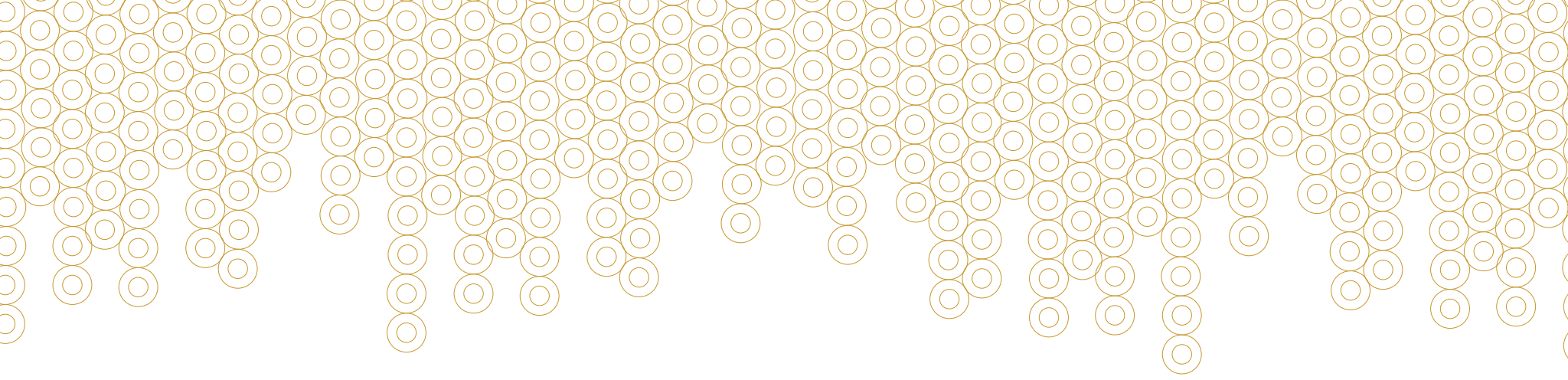
The ACE M.Ed. wishes to express gratitude to Doc Doyle for his commitment to excellence in planning and teaching and it hopes to continue a tradition of rigorous expectations.

# Introduction

Planning is key to effective instruction. A careful process of planning contributes to teacher comfort with content and lesson implementation, organization of material, and most importantly the purpose and direction of the instruction.

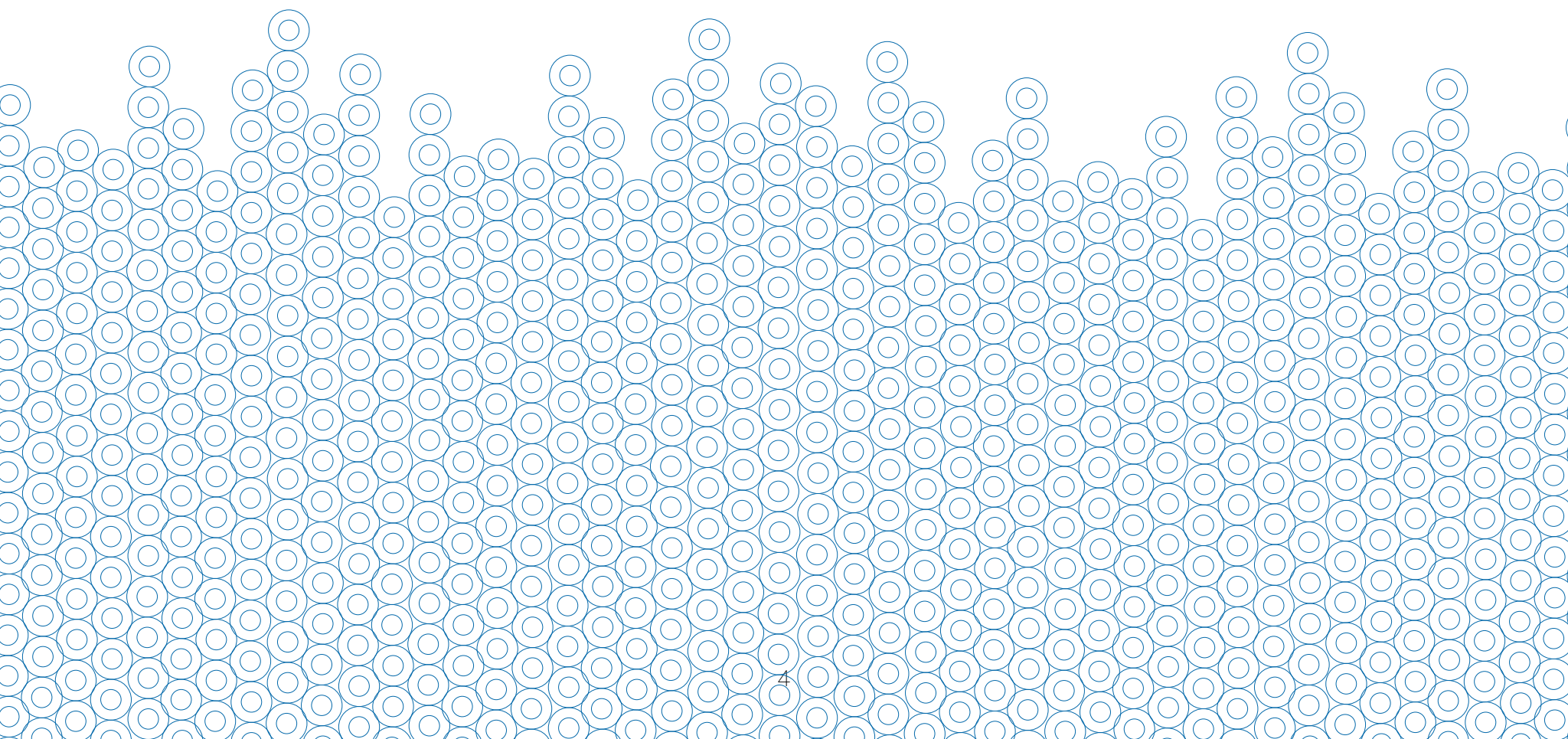
A normal process of planning begins with an overview of the entire academic year to prepare a year-long plan of units of instruction. Each unit, in turn, consists of several lessons that work together to develop a unit goal. The lessons are guided by instructional objectives that focus the lessons and the choice of assessments and instructional tasks. Long range planning, unit planning, and lesson planning are the various levels of the instructional planning process that work together to shape meaningful instruction.

In order to best understand each individual element of the architecture for planning, this resource breaks down the various components in reverse beginning with an overview of the processes of writing objectives, preparing lesson plans, developing units, and finally considering long range goals and yearlong plans. It is expected that once the teacher has a working knowledge of each component and its relationship to all others, the actual process of instructional planning with a consideration of the big picture and movement towards individual lessons can be enacted.

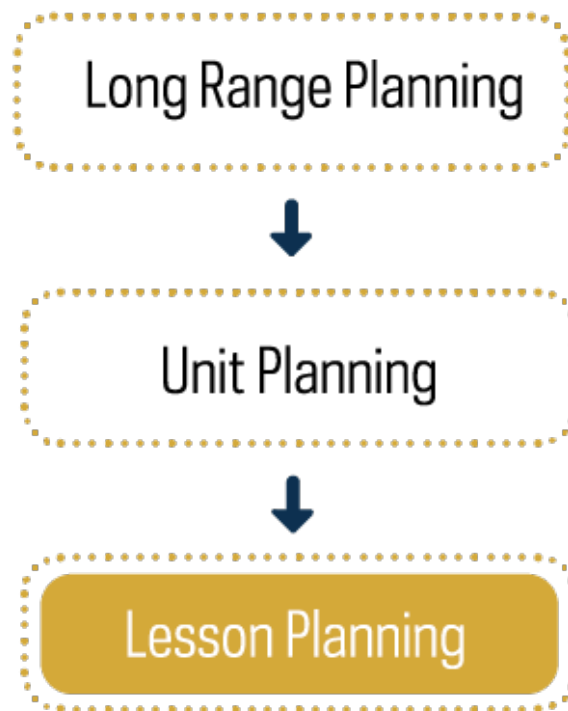


# PART 1

## Lesson Planning



# Overview



Three students are discussing the data from their experiment yesterday. The teacher is helping another group graph their results. Student groups who have finished are completing a reflection on their data and preparing for a discussion planned for the next day. The classroom is full of activity and students are engaged. There is some noise - the productive noise of students discussing and arguing about the data, even a little off topic talk that dissipates quickly with a comment from the teacher. Students are learning.

In the scenario presented, what might seem a bit like organized chaos is actually the product of careful planning. In the area of planning, research shows that effective teachers:

- Identify clear objectives and match assessments and instructional strategies appropriately.
- Plan lessons that are logically structured and progress through content step by step.
- Organize time and prepare materials in advance of the lesson.
- Consider students' prior knowledge, attention span, and learning needs.
- Develop objectives, questions, and activities that address higher and lower level cognitive skills. (Stronge, 2018)

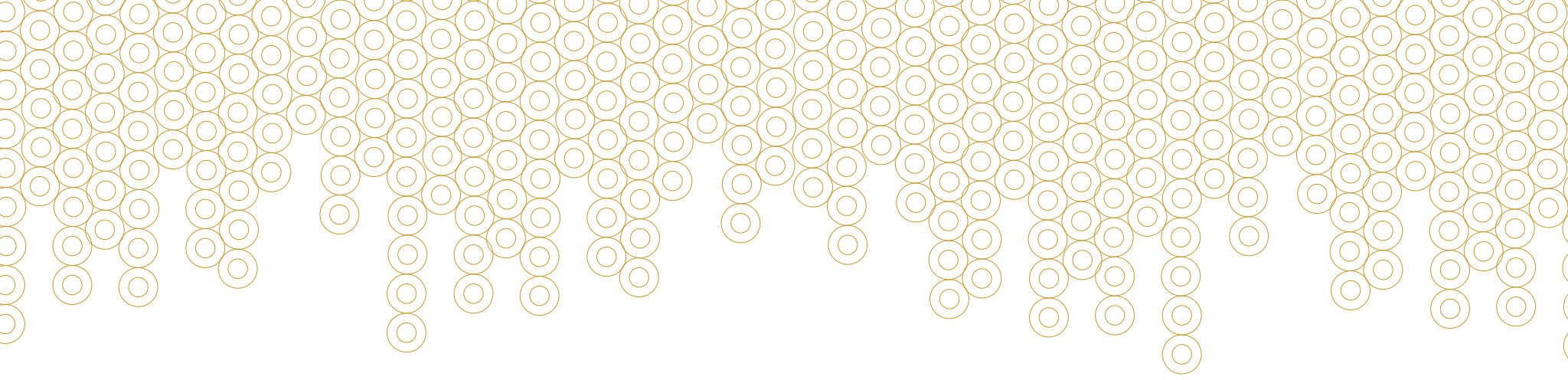
Lesson plans, and the instruction that follows from them, are central to student learning and to managing a classroom. When lesson planning, a backwards design (Wiggins and McTighe, 1998) is recommended. This means starting with the end in mind. Such a design begins with determining the lesson objective, followed by choosing appropriate assessments, and finally deciding upon the appropriate instructional activities that will help the learner reach the objective. The objective describes the lesson's purpose and drives the lesson; the assessment provides the means to demonstrate the objective's

attainment. Instructional activities outline the strategies a teacher uses to facilitate student learning in order to be able to demonstrate achievement of the objective.

There are three simple questions to ask when planning:

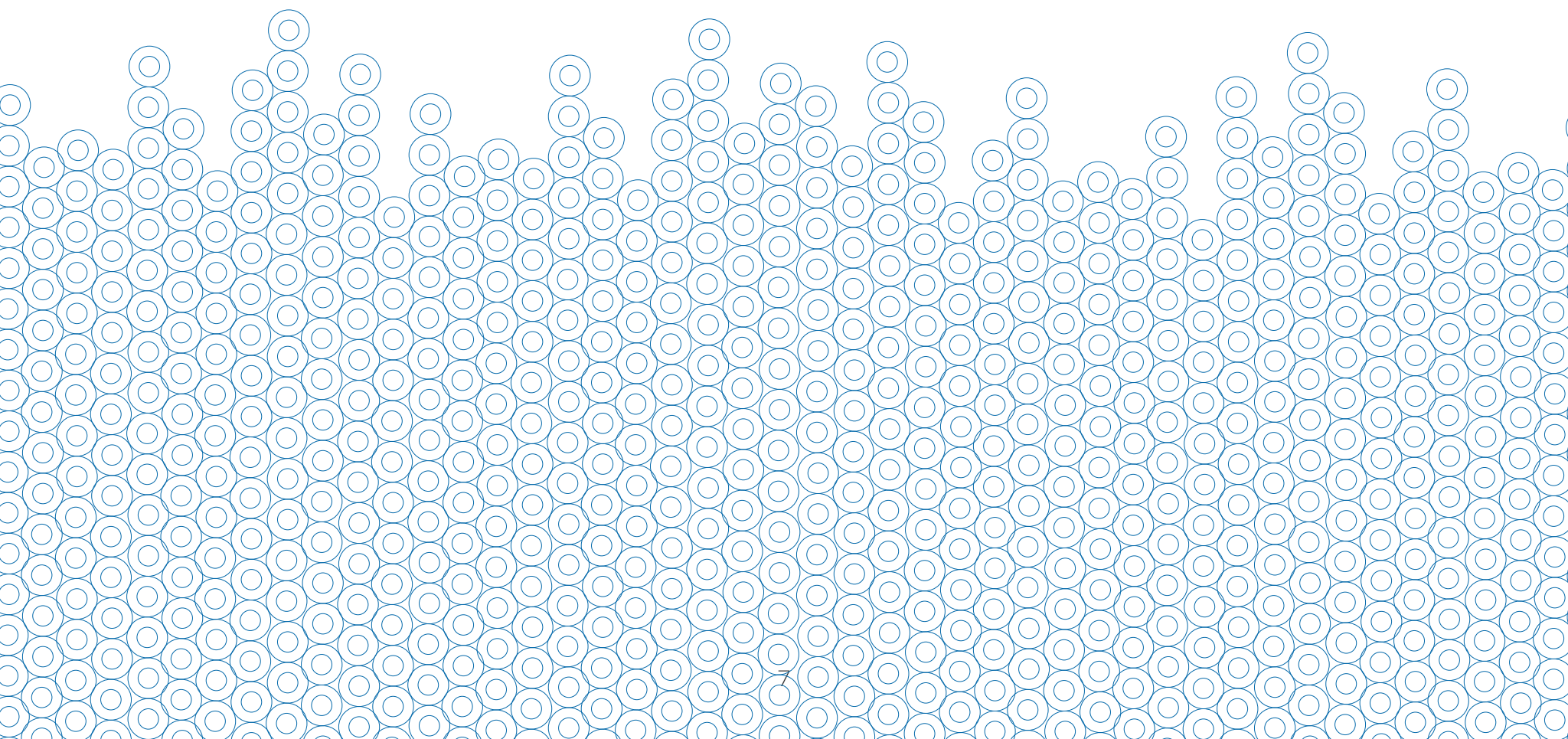
1. What is it that I want students to know or be able to do by the end of the lesson? Answering this question determines the lesson objective.
2. How will I know if students have achieved the objective? Answering this question considers the lesson assessment.
3. What instructional strategies and learning tasks can help students achieve the objective? Answering this question shapes the lesson.

This section is divided into three parts. Chapter 1 will consider the process of writing objectives and aligning assessments, and it will introduce knowledge types that are important to consider when planning instruction. Chapter 2 will consider the structure of the lesson plan and present four basic strategies for engaging students that when mastered can easily and effectively be varied in instructional delivery. Chapter 3 will present sample lessons at the elementary, middle, and high school levels.



# Chapter 1

## Writing Objectives





# Introduction

Objectives guide lessons. They are most effective when stated in clear and specific terms and point to observable student outcomes. The greater the clarity in stating the objective, the more likely the teacher will develop appropriate assessments and activities in relation to it.

When preparing to write an objective for a particular lesson, a teacher asks, "What is it I want my students to know or be able to do by the lesson's end?" In answering the question, the teacher contemplates two things: a concept for the lesson and the level of critical thinking with which to engage the concept. The concept specifies a knowledge focus that could be a principle, generalization, key vocabulary term, skill, or a process. The level of critical thinking is signaled by a verb that best represents the intellectual activity the students are to perform in relation to the knowledge focus. Paramount to writing objectives is the use of a taxonomy that outlines levels of thinking. There are varied and valid taxonomies as noted in this brief overview that follows.

# Critical Thinking Verbs: Bloom's Taxonomy and the Updated Taxonomy

In the 1950s, Benjamin Bloom and his associates developed a classification of levels of intellectual behavior important in learning. (Bloom 1956) They described a taxonomy with three related domains: the cognitive, affective and psychomotor. Information pertaining to the cognitive domain outlines six cognitive processes (knowledge, comprehension, application, analysis, synthesis, evaluation) that progress from a lower level of recalling facts to a more complex level of evaluating information. The cognitive domain levels are a useful guide to think about students' intellectual development and to facilitate the planning of quality questions and lesson objectives. Each of the six categories of knowledge, comprehension, application, analysis, synthesis, and evaluation has certain descriptive verbs associated with it that emphasize particular intellectual abilities and skills.

The diagram on the next page offers a brief description and a common selection of verbs associated with the six specified critical thinking levels. While this list provides a comprehensive selection of verbs that can be used when writing objectives, it should be noted that many lists of Bloom's verbs abound and that verbs occasionally appear in different categories on different lists.

Several years after its inception, Anderson and Krathwohl undertook a revision of Bloom's Taxonomy. Their updated framework still focused on six cognitive processes but used verbs - remember, understand, apply, analyze, evaluate, and create - instead of nouns to distinguish the levels. The meaning associated with each level remained fundamentally the same, though the framework placed creating as a higher level cognitive process than evaluating. According to Anderson and Krathwohl, the six cognitive processes and what they mean are stated as follows:

- Remember – retrieve relevant knowledge from long-term memory
- Understand - construct meaning from instructional messages, including oral, written, and graphic communication
- Apply – carry out or use a procedure in a given situation
- Analyze – break material into constituent parts and determine how parts relate to one another and to an overall structure or purpose
- Evaluate – make judgements based on criteria and standards
- Create – put elements together to form a coherent or functional whole, reorganize elements into a new pattern or structure.

Anderson and Krathwohl, 2001, p.31

## KNOWLEDGE

KNOWLEDGE will require students to recall information. An assessment would likely require students to recall, list or label something, or select from a group.

- define
- identify
- label
- list
- locate
- match
- name
- select
- state

## APPLICATION

APPLICATION will require students to apply a rule (or principle, method, theory) to an actual situation. An assessment would likely require students to apply a principle (rule, method, or theory) to a new and concrete situation (new text, problem, event or context).

- apply
- demonstrate
- execute
- implement
- produce
- relate
- show
- solve
- use

## SYNTHESIS

SYNTHESIS will require students to put parts together to create something new. An assessment would likely require students to develop an original composition (poem, short story, story ending) or design an original product.

- adapt
- compose
- create
- design
- develop
- formulate
- invent
- modify
- revise
- structure

## COMPREHENSION

COMPREHENSION will require students to describe or explain something to show they have grasped the meaning. An assessment would likely require students to provide either a written or oral statement that explains or describes something in their own words and/or through the use of an original image or diagram.

- describe
- discuss
- explain
- give examples
- illustrate
- interpret
- paraphrase
- summarize
- translate

## ANALYSIS

ANALYSIS will require students to look closely at the relationship between parts and whole. An assessment would likely require an oral or written breakdown of components to note patterns and/or meanings of a previously unseen text, diagram, or image.

- analyze
- breakdown
- correlate
- categorize
- compare
- connect
- contrast
- debate
- differentiate
- infer
- predict

## EVALUATION

EVALUATION will require students to rate something using defined criteria. An assessment would likely require a written or oral statement defending a rating by giving attention to the defined criteria.

- appraise
- assess
- critique
- decide
- evaluate
- judge
- justify
- rank
- rate

Today, many schools continue to use Bloom's Taxonomy or the revised taxonomy as a framework for writing lesson objectives. Both are valid constructs that position the cognitive processes in a continuum of increasing cognitive complexity (Anderson and Krathwohl, 2001).

As you begin to plan and organize lessons, the emphasis should be less on which taxonomic framework to use and more on how to meaningfully sequence and operationalize student thinking in your classroom. The National Council for Excellence in Critical Thinking defines critical thinking as "that mode of thinking — about any subject, content, or problem — in which the thinker improves the quality of his or her thinking by skillfully analyzing, assessing, and reconstructing it." (<http://www.criticalthinking.org/pages/our-concept-of-critical-thinking/>)

411). When writing lesson objectives, the stark difference between low level thinking (knowledge/remembering & comprehension/understanding) and high level critical thinking (application, analysis, synthesis/creation, evaluation) is an important consideration for planning meaningful instruction. The more complex the learning process, the more likely the learning outcome will hold student interest, increase retention, and have greater transfer value (Grolund, 2004), meaning that students will be able to use the knowledge and skills in novel contexts.

Take a look at the three sample objectives provided below. Note that the objective is written in the form, students will be able to ... (abbreviated to SWBAT).

1. SWBAT compare and contrast the differing effects of the American Transcontinental Railroad and the Russian Trans-Siberian Railroad. (HS Social Studies)
2. SWBAT infer character traits using evidence from a text. (MS English)
3. SWBAT calculate the exact change needed in a transaction. (Elementary Mathematics)

- What is the concept emphasized in each of these objectives?
- What is the level of critical thinking at which each lesson will engage students?
- If teaching a lesson framed by one of these objectives, how would you help students achieve it?

The first two questions can be answered easily enough but in order to answer the third question, some understanding of knowledge types can be helpful.

## Types of Knowledge

Students are grouped in their house teams (groupings of four students) discussing the following problem: "The principal is planning the elementary school's service trip next month. She has reserved 15 vans that can each seat 12 students. Our school has 176 students. Do we have enough vans?" The teacher is helping one team recall how they are to set up their division problem. One house team is quietly dividing 176 by 15 while another has decided to begin their analysis by multiplying 12 by 15. Two students are discussing if the remainder they calculated by dividing 176 by 12 represents those students who do not have a ride or those students on the last bus. Each team is actively engaged in discussing mathematics and problem solving.

In this scenario students are grappling with meaning making about division and remainders even as they engage in the steps of the algorithm. Two types of knowledge, declarative and procedural – information and skills – are evident. Declarative knowledge is knowing "what" and procedural knowledge is knowing "how to." In our example above, the concept of division is declarative knowledge while the steps to solving the problem are procedural knowledge.

Additional examples help with the distinction between these knowledge types. When getting a license, the road test assesses the procedural knowledge (how to make a right turn, use the brakes, etc.), while the written test assesses declarative knowledge of road signs, laws, etc. In cooking when learning how to make a roux, knowing the ingredients is declarative knowledge and knowing how to combine them in a certain order is procedural knowledge.

Declarative and procedural knowledge are readily part of each lesson but their learning is facilitated by different approaches. Marzano (1992)<sup>1</sup> outlined three phases for learning each of the knowledge types that can be helpful (see chart).

What follows is a more detailed description of each type of knowledge. While presented separately, the reader should be mindful that lessons attend to both of these in some combination.

1 – Marzano's discussion of declarative and procedural knowledge in his work, *A Different Kind of Classroom* (1992) is helpful for considering how each type of knowledge is learned. However, it is important to note that an updated volume by Marzano and his colleague, Kendall (2007), presents a new Taxonomy of Educational Objectives that specifies three knowledge domains: information (declarative knowledge), mental procedures (procedural knowledge), and psychomotor procedures paired with a new taxonomy of processing levels (retrieval, comprehension, analysis, knowledge utilization, metacognitive system, and self-system). Though this newer resource provides updated and helpful information, it is beyond the scope of this introductory text to consider multiple taxonomies for writing objectives.

# KNOWLEDGE TYPES

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graph TD; A[KNOWLEDGE TYPES] --- B[DECLARATIVE]; A --- C[PROCEDURAL];
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## DECLARATIVE

What You Know

### 3 Phases of Learning Declarative:

1. Construct Meaning using Prior Knowledge
  - Link new knowledge with old knowledge
2. Organize the Knowledge
  - Create an internal representation of the knowledge
3. Store the Knowledge
  - Use elaboration strategies to represent knowledge in long-term

## PROCEDURAL

What You Are Able To Do

### 3 Phases of Learning Procedural:

1. Construct the Model
  - Create an idea of what the skill or process involves
2. Shape the Model
  - Alter the initial model & build conceptual understanding
3. Internalize the Model
  - Learn the model until it is performed with ease

## Declarative Knowledge

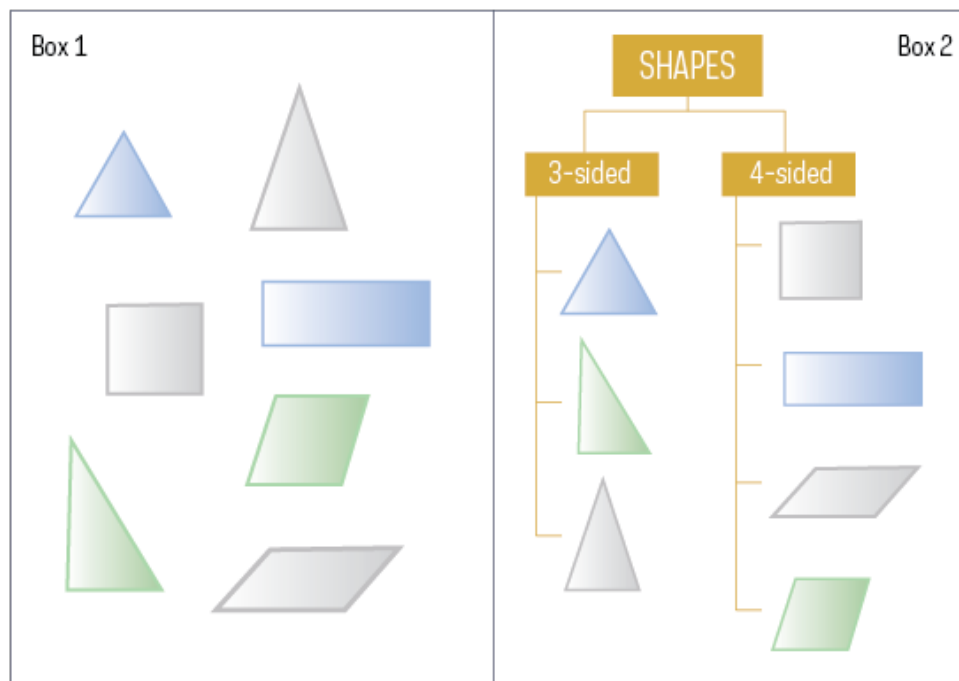
Declarative knowledge is information. It includes vocabulary terms, facts, and time sequences as well as generalizations (statements from which examples can be given) and principles (cause and effect relationships and correlational relationships) (Marzano and Kendall, 2007). The laws of thermodynamics, the Ten Commandments, definitions of mean, median and mode, causes of the fall of the Roman Empire, and examples of dynamic and static characters in a particular piece of Literature are examples of declarative knowledge. Processes that are helpful for students to learn and retain declarative knowledge include constructing meaning; organizing the knowledge; and storing the knowledge.

In the process of constructing meaning, students link new knowledge to what they already know. Without prior knowledge, new knowledge would make little sense. Students' prior knowledge includes what they "know or believe, whether positive or negative, accurate or inaccurate, real or imagined, verifiable or non-verifiable" (Murphy and Alexander, 2006, p. 34). A teacher activates prior knowledge in order to clarify misconceptions and provide a sticking point for new knowledge. By helping students tap into their prior knowledge, understanding of new knowledge is facilitated. A teacher can use many approaches to activate prior knowledge. For example, using a KWL strategy, a teacher might ask, what do you know about Confucius? Using this method, students complete a chart with columns representing what they KNOW about the topic (prior knowledge), what more they WANT to know, and then, after the lesson or unit, what they have LEARNED. (Additional examples provided in the next chapter.)

Organizing knowledge helps students to structure thinking and form a visual representation of concepts. Various organizational structures such as tables, charts, and concept maps help students to visually represent ideas and concepts showing connections and revealing understanding. Organizers can be used in both assessments and lesson activities. For example, after studying various geometric shapes and as a check for understanding, a 3rd grade teacher might display images of the shapes (Box 1) and ask students to organize them using a network tree (Box 2). The teacher can then ask various questions about the organization to determine student thinking and understanding.

If used as a learning activity, that third grade teacher might display shapes (Box 1) to introduce the idea of classifying according to a recognized pattern. She might ask a simple question, "How could we group these shapes so that every member in the group is alike in some way?" and then give students a set of the shapes that they can manipulate and put into groups. Students might group according to color or by number of sides. Students would have an opportunity to talk about their groups. The teacher might then begin an organizer on the board and ask for help in placing shapes within it. The chosen pattern would be number of sides. Students would be called upon to add a shape and once completed, the teacher would introduce new vocabulary: rectangle, square, parallelogram and rhombus, and equilateral, isosceles and acute triangles that she writes inside of the shapes and has her student write inside of their "shape" manipulatives. Students then look around the classroom for examples of these shapes.

## Network Tree



There are six general semantic patterns that are helpful for organizing declarative knowledge: descriptive, sequence, cause/effect, problem/solution, generalization, and concept (Marzano and Kimbell, 2007). Creating a graphic organizer that uses one of these patterns can help a teacher present organized information and can help students form a visual representation of concepts.

Constructing meaning for learning and organizing declarative knowledge has little purpose if the learner cannot later access the knowledge. Storing declarative knowledge in long-term memory for easier retrieval can be strengthened through the use of strategies such as rehearsal, elaboration, and chunking.

Rehearsal involves repetition in saying or writing information. It is a commonly used technique for memorizing facts, the type of learning associated with knowledge level learning. For example, a teacher might have students practice math facts while engaging in a clapping routine. The clapping actually aids the review providing a multisensory experience. Different examples might involve a student reviewing a set of vocabulary notecards by reading definitions and quizzing himself to assess word recognition, or a classroom of students responding chorally to the daily greeting by their Spanish teacher. In each of these examples, verbal rehearsal provides ongoing review which can help students achieve automaticity for the retrieval of facts. While rehearsal remains a commonly used practice, other strategies are more effective in helping students store declarative knowledge.

In the process of elaboration new information is associated with information already stored in the memory, thus making the learning more meaningful to the learner and therefore more likely to be retained. Elaboration helps students create mental pictures. For example, having students draw images to accompany new vocabulary terms helps them to create

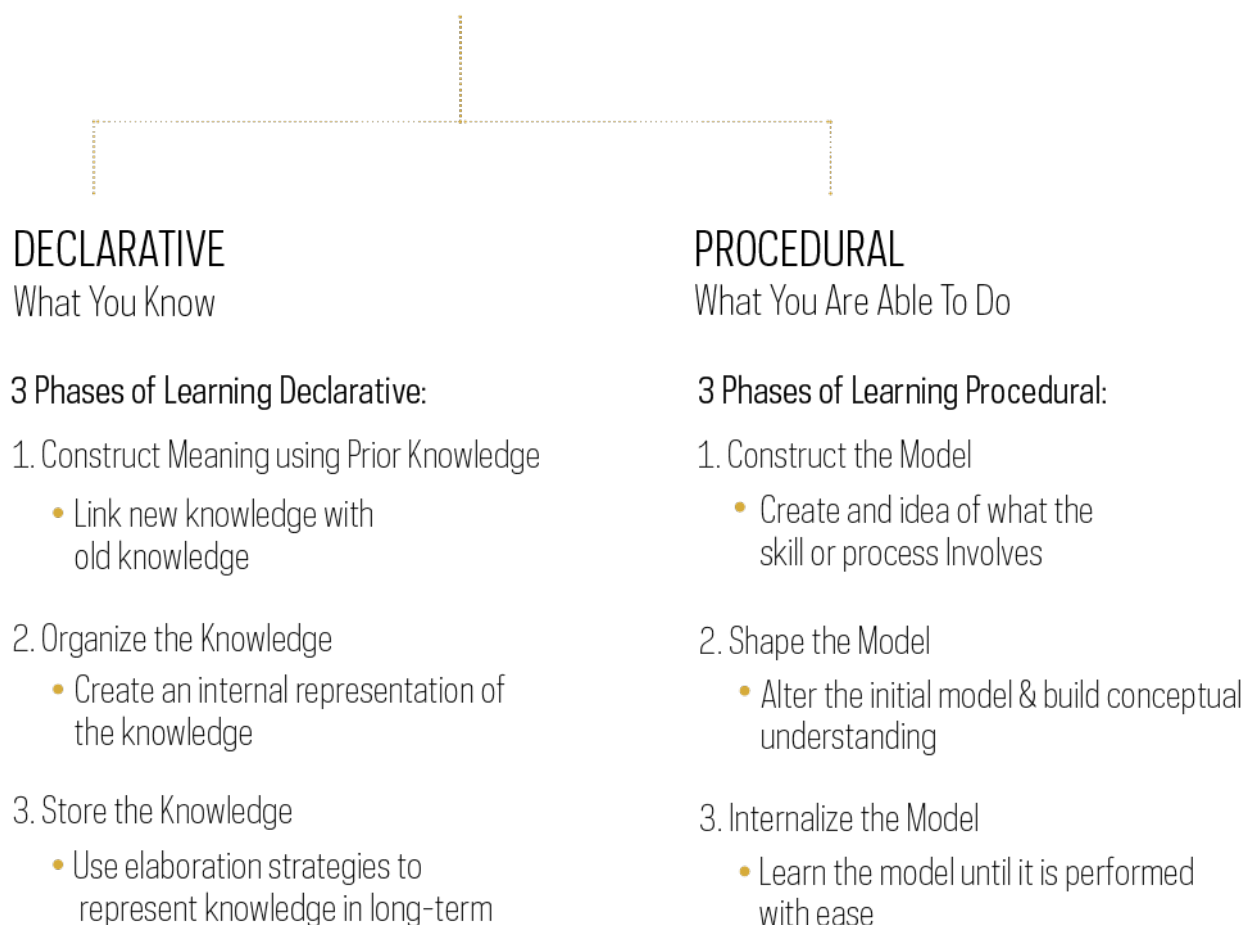


visual links. Other forms include storytelling (a teacher telling the story of 18th century British sailors and how they came to be called “limeys” as he introduces a lesson on scurvy and other vitamin deficiency diseases), adding sensory detail (a teacher drawing attention to use of sensual language in *Pride and Prejudice* to highlight character feelings and setting sights and sounds), analogizing (a teacher comparing a human cell to a factory), or using mnemonics (who doesn’t recall, “Please excuse my dear Aunt Sally” or something comparable to consider order of operations when interpreting a lengthy math statement?). Each of these strategies connects new information to something familiar adding meaning to the learning.

Chunking information, like repeating a specific sequence of 3-digits, 3-digits, 4-digits when recalling telephone numbers, further contributes to recall. In a classroom, this might be seen as young students repeat phrases after their teacher to learn the entire Act of Contrition or older students repeat phrases to learn the Our Father in a different language. Additionally, chunking occurs every time students sort or categorize objects into groups. Consider the geometric shapes presented earlier and how it is much easier for third graders to recall two groups of shapes - triangles and rectangles - as opposed to naming each individual shape.

To summarize, students effectively learn declarative knowledge in three stages: constructing meaning for the new knowledge by integrating it into the meaning of prior knowledge; organizing it through representations that relay meaningful connections; and storing it with personalized additions by the learners.

## KNOWLEDGE TYPES



## Procedural Knowledge

Procedural knowledge is “how to” knowledge. It includes the processes and skills necessary for a specific content area. Procedures may be automated (algorithms) or they may require a great deal of executive function (strategies). Following an algorithm for capitalizing the first letter of each sentence will always produce the same result and could be done with automaticity. The writing process, however, produces different results each time for each student and requires controlled execution by the student. Writing a paragraph, multiplying fractions, reading a map, and analyzing data from an experiment are all examples of skills and processes students learn in the classroom.

Students are aided in learning procedural knowledge when instructional activities help them construct the model, shape it and internalize it.

When students construct a model of the procedure, they create an idea of what the skill or process entails. At this initial stage, they are able to describe their understanding of the process or skill but are not yet able to perform the procedure. Students may begin to construct the model themselves or teachers may present the model to them. Either way, teachers should be cognizant of the type of procedural knowledge they want students to learn when planning these activities. Automated procedures (algorithms, i.e. reading a triple beam balance) require different models than fluid procedures (strategies, i.e. analyzing a text for theme).

After students have constructed an initial idea of the model, they then work to shape it through additional practice or exposure. During this stage, student errors will appear frequently as they attempt to integrate the model with their prior knowledge. Teachers must attend to these errors, correctly diagnosing the misstep. Then, teachers can choose to provide additional guidance or modified examples to direct students. Often, the misstep is due to some lacking conceptual understanding of the procedure or declarative knowledge involved. It is essential at this stage to ensure students have deep conceptual understanding of the skill or process. With only a superficial understanding, students will not be able to apply their model to new situations, what many argue is the main goal. Teachers should provide a variety of situations or contexts where the skill or procedure is applicable to ensure students have a deeper conceptual understanding.

In the final stage, students internalize their constructed and shaped model. For prescriptive procedures and skills, this means students move towards automaticity in their execution of their model. For those procedures and skills that require more executive function, this means students are able to successfully apply their model to additional situations. Students are now able to use the procedure or skill with ease, following their constructed model of execution.

One effective way to help students learn, shape, and internalize procedural knowledge is to use a “model-coach-fade” approach.

Consider a 4th grade Math lesson where the teacher wants his students to multiply fractions by whole numbers. He begins the lesson with the question, "if the 5 of you in the front row each had  $\frac{1}{3}$  of a pound of candy, how many pounds would you have all together?" Students consider the question for a time before the teacher asks them to draw a picture of the situation. Drawing on students' results, he then asks how would we model these pictures mathematically, writing  $5 \times (\frac{1}{3})$  on the board. As a class, they solve the problem  $5 \times (\frac{1}{3}) = \frac{5}{3}$ . The students have begun to construct a model, and then the teacher models the problem as  $5 * \frac{1}{3} = (5*1)/(1*3)$  using a think-aloud approach. The class discusses the model as the teacher changes the situation to each student having  $\frac{2}{3}$  of a pound of candy. Attending to student misconceptions, the class constructs a model for multiplying fractions by whole numbers while solving two additional problems together, understanding a fraction  $\frac{a}{b}$  as a multiple of  $\frac{1}{b}$ . In pairs, students then solve additional problems using both visual representations and the algorithm constructed in class. The pairs coach each other on the model as the teacher works to shape students' understanding of both the procedure and the conceptual knowledge underlying it. Finally, confident misunderstandings have been addressed, the teacher fades as students apply the model to new situations to internalize the knowledge.

In a second example, a 7th grade Literature teacher wants her students to analyze a character in a novel using the STEAL method (Speech, Thoughts, Effects on others, Actions, Looks). Modeling, she reads a descriptive passage from their current novel and comments aloud which category of STEAL is best captured. She repeats this two more times, pausing after each passage is read, and thinking aloud what the passage is revealing about the character's speech, thoughts, emotions, actions, or looks. She next invites students into the process of helping to decipher what a passage is saying as she undertakes a few more examples with the entire class. When confident that students have grasped the process, she invites pairs to continue the analysis, finding passages and noting what they reveal. Through this process, the teacher continues the process of shaping their thinking as she moves about the room and engages with the pairs. Finally, additional pages are assigned for reading and a new character assigned for analysis. The teacher fades as students now undertake this work individually.

In a freshman Spanish I classroom, a teacher might begin a lesson on -ar verbs by telling amusing stories in Spanish. The teacher uses verbs learned by the class last unit and conjugates them for a variety of subjects. As students catch on to the changes to each verb, the teacher introduces the concept of conjugating verbs. The class discusses how they conjugate verbs in English, and the teacher compares this with the process for conjugating in Spanish. Passing out a graphic organizer, she then models the process for "hablar." She then invites the class as a whole to apply the procedure to "gustar." Carefully eliciting thoughts from multiple students, the teacher guides students toward the conjugations. Confident in their comprehension of the procedure, students then work in pairs to conjugate two other verbs listed on the graphic organizer. While students do this, the teacher monitors students' progress and continues to shape their understanding of the model. She engages students in conversation, assessing their ability to apply the model to speech. Finally, she fades and students individually complete conjugations of a final two -ar verbs on the graphic organizer.

In all of these examples, a process of learning a model, practicing the model and internalizing it takes place. While all of this is important, the purpose of learning procedural knowledge is to be able to apply it in new and varied ways. Planning lessons for the application of skills is key and if not done well, the lessons will stay at the declarative knowledge level and at the lower levels of learning.

## KNOWLEDGE TYPES

### DECLARATIVE

What You Know

#### 3 Phases of Learning Declarative:

1. Construct Meaning using Prior Knowledge
  - Link new knowledge with old knowledge
2. Organize the Knowledge
  - Create an internal representation of the knowledge
3. Store the Knowledge
  - Use elaboration strategies to represent knowledge in long-term

### PROCEDURAL

What You Are Able To Do

#### 3 Phases of Learning Procedural:

1. Construct the Model
  - Create an idea of what the skill or process involves
2. Shape the Model
  - Alter the initial model & build conceptual understanding
3. Internalize the Model
  - Learn the model until it is performed with ease

## Declarative & Procedural Knowledge

Both declarative and procedural knowledge are integrated in most lessons. For example, in teaching how to subtract decimal numbers (procedural), the teacher ensures understanding of place value and decimal values (declarative) or in teaching students how to write a multi-character dialogue (procedural), the teacher ensures understanding of quotation marks and other grammatical concepts (declarative).

Let's revisit the three objectives presented earlier.

1. SWBAT compare and contrast the differing effects of the American Transcontinental Railroad and the Russian Trans-Siberian Railroad. (HS Social Studies)

In this objective, the teacher combines declarative knowledge about effects of railroads on specific locations and the procedural knowledge of how to compare and contrast. In order to assess this knowledge, the teacher provides an opportunity to demonstrate learning by stating that students will (SW) differentiate effects of the American Transcontinental Railroad and the Russian Trans-Siberian Railroad through a comparison chart of specific locations.

2. SWBAT infer character traits using evidence from a text. (MS English)

The objective draws upon the declarative knowledge of character traits and the procedural knowledge of how to use evidence from a text to support an analysis. In order to assess this knowledge, the teacher provides an opportunity to demonstrate learning by stating that SW infer character traits about characters in *To Kill a Mockingbird* in a graphic organizer.

3. SWBAT calculate the exact change needed in a transaction. (Elementary Mathematics)

In this final example, the objective requires an emphasis on the declarative knowledge of the value of different coins and bills (math concept) and the procedural knowledge (skill) of how to add and subtract with decimals to the hundredths place. In order to assess this knowledge, the teacher provides an opportunity to demonstrate learning by stating that SW calculate the exact change to give a classmate in a shopping problem solving scenario.

## Summary: Back to Backward Design

One starts with the end – the desired results (goals or standards) – and then derives the curriculum from the evidence of learning (performances) called for by the standard and the teaching needed to equip students to perform. (Wiggins and McTighe, p. 8)

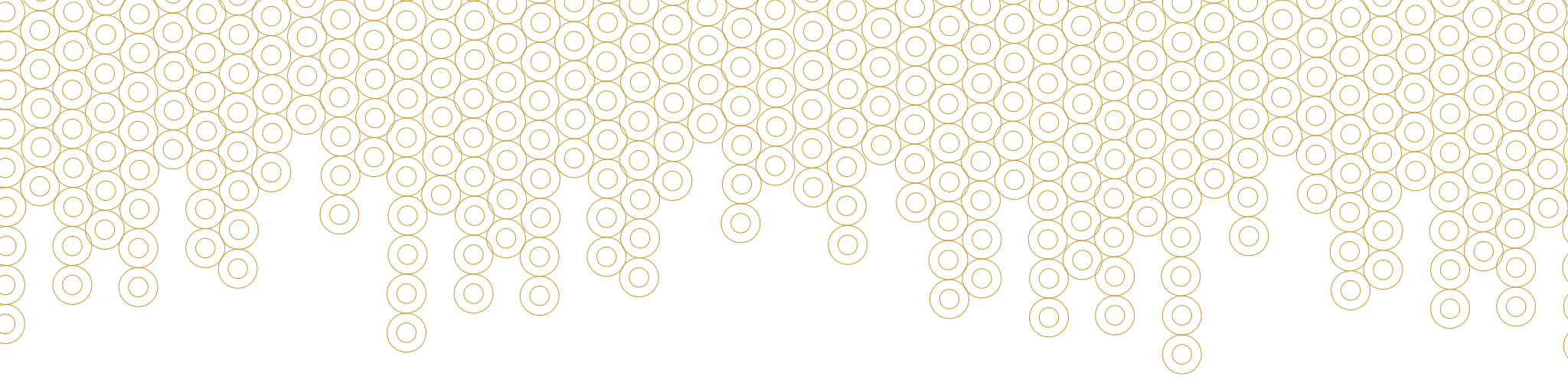
Backward design planning as described by Wiggins and McTighe in their book, *Understanding by Design* (1998) remains relevant. Lesson planning begins with determining the lesson objective and continues with choosing an appropriate assessment. Here are our three examples from above.

Objective:	SWBAT <b>compare and contrast</b> the differing effects of the American Transcontinental Railroad and the Russian Trans-Siberian Railroad.
Assessment:	SW <b>differentiate</b> effects of the American Transcontinental Railroad and the Russian Trans-Siberian Railroad through a comparison chart of specific locations.
Objective:	SWBAT <b>infer</b> character traits using evidence from a text.
Assessment:	SW <b>infer</b> character traits about characters in <i>To Kill a Mockingbird</i> in a graphic organizer.
Objective:	SWBAT <b>calculate</b> the exact change needed in a transaction.
Assessment:	SW <b>calculate</b> the exact change needed to give a classmate in a shopping problem solving scenario.

With the objective's concept and a particular critical thinking level for engaging it determined, and with an appropriately aligned assessment chosen, decisions about instructional activities can be made. This will be the focus of our next chapter.

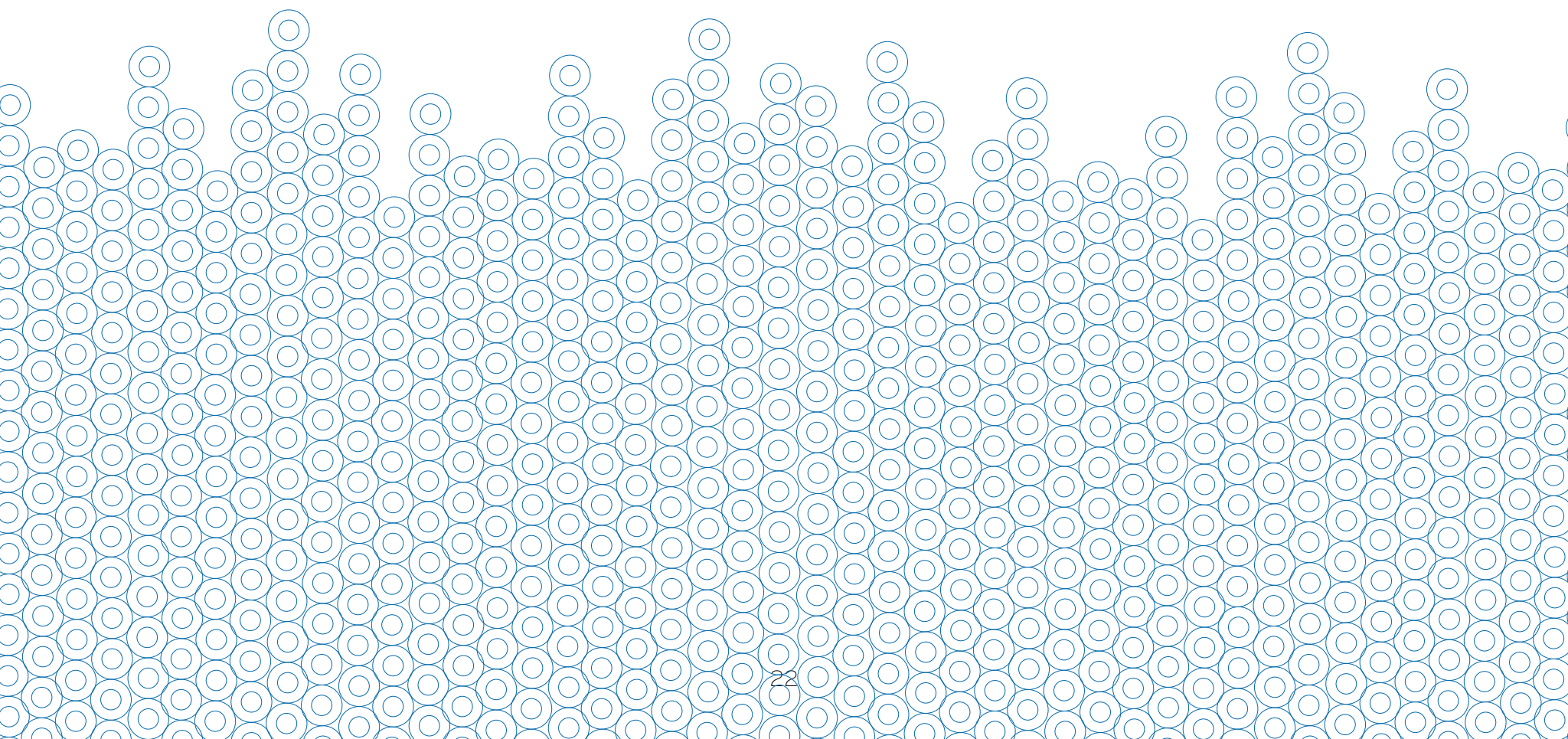
### Questions

1. Choose one of the three objectives stated on the previous page and jot down activities that you believe would enable students to meet the objective.
2. Suggest an alternative assessment for each of the objectives mindful of the level of critical thinking noted in the verb.
3. If the first objective example were re-written to read: SWBAT recall the differing effects of the American Transcontinental Railroad and the Russian Trans-Siberian Railroad, how does that change the assessment? Why might a teacher choose the originally stated objective instead of this version?

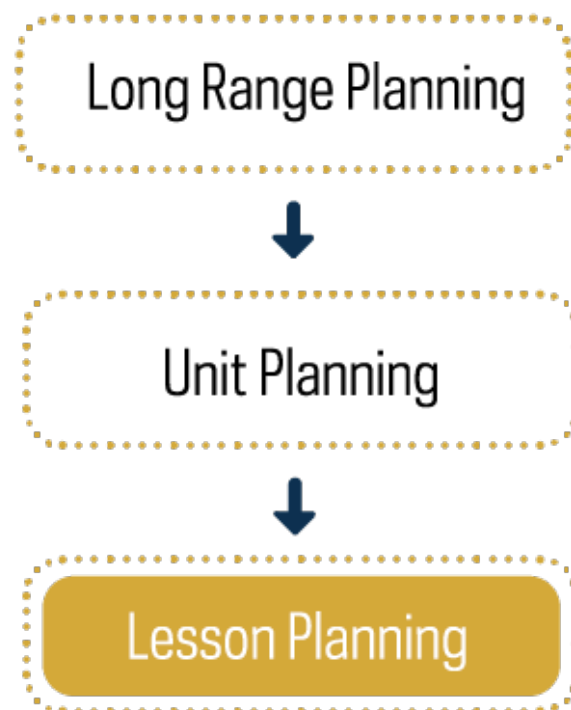


# Chapter 2

## Planning a Lesson



## Introduction



The previous chapter introduced the steps to backward design: identifying an objective, determining a means of assessment, and considering appropriate learning tasks. This chapter continues the discussion by focusing on instruction with attention to structures, strategies and tasks that help teachers plan meaningfully once their objective and assessment are developed.

Effective teaching depends on effective planning that uses diverse and well-chosen resources to create lesson plans that engage and challenge all students. Many models of lesson planning exist. While there is no model that has been shown to be far superior to all others, ACE Teaching Fellows supports the use of a template and an approach that it believes helps teachers plan cohesively to build needed conceptual knowledge and skills over time. In general, ACE Teaching Fellows promotes a 2-4 day lesson for most subject areas and grade level planning. Citing the research of Rovee-Collier (1995) and Nuthall (1999), Marzano (2007) notes that students need about four exposures to information (declarative knowledge) in order to be able to incorporate it with what they already know. He also notes that when developing a skill (procedural knowledge), students need time to shape and reshape steps and processes in order to reach a level of automaticity. The 2-4 day lesson plan structure affords sufficient opportunity to facilitate the learning of new information and/or practice to facilitate the learning of a new skill.

However, not all lessons work best in a 2-4 day plan. At times, one day lessons fill specific purposes that help frame a unit, tie together a set of previous lesson plans, or engage students in specific disciplinary work that may spiral throughout the unit. Scripted literacy and/or math programs often structure lessons to work best in a single-day format. A teacher must consider many factors when making decisions about planning a single or multi-day lesson.



This chapter begins with a look at the basic structures of the lesson plan and ACE lesson template. It then offers research-based strategies that help students engage in critical thinking and develop skills so that they can grasp the important knowledge and be able to use it. The chapter ends with a “walk-through” example of a teacher undertaking the planning process.

# Planning a Lesson

The essential elements of an effective 2-4 day lesson include:

## 1. A clear lesson objective

As detailed in the prior chapter, the objective guides the lesson. It utilizes one or two verbs to state the level of critical thinking through which to engage students with the lesson's concept. Whether the knowledge is declarative or procedural, activities engage students in critically thinking at the level implied in the lesson objective.

Teachers are encouraged to make the lesson objective transparent to their students by posting it in the classroom, noting it at the start of a lesson, and/or even having students jot it down in their notes. This lets students know the lesson's purpose and it helps to hold the teacher accountable.

Objectives are not chosen randomly, nor are they simply based on textbook chapters or the interests of the teacher. On the contrary, they connect to learning outcomes for each grade level and subject area specified by the state or diocese. These Standards reflect learning expectations for students. Standards may be from the Common Core State Standards (CCSS), the Next Generation Science Standards (NGSS), or standards specific to a state or diocese. The local diocese is typically the determinant of standards in use in its Catholic schools.

While most lessons will typically be guided by one objective that is written using one Bloom's verb, there are times when two objectives or a single objective using two verbs is more appropriate. In English Language Arts, for example, a literature-based objective and a writing objective might guide a lesson. In science, an objective might invite students to "construct and analyze" a model of a particular concept. Whether a lesson plan notes more than one objective or uses more than one verb in framing the objective, the teacher should design and sequence activities with an emphasis on coherence and alignment between the objective and assessment.

## 2. A brief opening activity (an anticipatory set) that activates prior knowledge and/or points students toward the day's purpose

In middle and high school classrooms, this anticipatory set (AS) has often been referred to as bellwork because it is associated with the bell signaling the start of a lesson. The anticipatory set is meant to provide a brief and generally individual engagement experience creating a calm transition into the lesson. It affords the teacher time and opportunity to handle administrative tasks while students complete the prompt perhaps in a notebook. However, this initial segment should be meaningful; it is not something used just so a teacher can take attendance. Processing of the AS in a whole group discussion or pair exchange generally opens the lesson and provides the opportunity for the teacher to make known the day's focus.

In elementary classrooms, use of AS prompts to be completed individually by students is less prevalent as teachers manage the transition between subjects without the use of a bell to note the beginning of a different subject. Rather, each lesson should begin with an activation of prior knowledge during which the teacher would remind students the topic and goals of instruction using a personal story, a model (or anchor chart), or, in some cases, a quick write, quick discussion, or quick read.

3. Instructional methods to engage students with the objective's core concepts and skills (the declarative and procedural knowledge important to the lesson)

Teachers choose a particular method or task effective in helping students learn new knowledge and progress from an initial understanding to a sophisticated understanding and/or application (Marzano, 2017).

Cognitive scientists discuss three stages in processing information: input, elaboration and application (Hammond, 2015). During the input phase, a teacher's role is to choose methods that chunk information in manageable amounts so that students are able to take in the information. During elaboration, a teacher's role is to provide opportunities for students to actively process new information. During application, a teacher's role is to provide tasks that involve students in using the information in a meaningful way. In a 2-4 day lesson, multiple methods, strategies and tasks will help learners build conceptual knowledge.

4. Frequent checks for understanding (formative assessments) and the final lesson assessment (lesson summative assessment) that shows attainment of the lesson objective

Instructional methods and activities are means to an end: student learning. The process of systematically probing student learning and adjusting instructional practice is known as formative assessment.

Checks for understanding occur throughout the lesson and are used to confirm understanding, determine areas of confusion, or surface misconceptions. During this formative assessment, teachers observe students, ask questions, and monitor work with an eye towards adjusting lessons as needed. While diagnosing issues is one major part of formative assessment, assessments are not formative if they do not inform your teaching practice. The formative assessment and checks for understanding are ultimately only valuable if they are designed to help you and your students know what they know and are able to do.

While checks for understanding occur throughout a lesson, a processing activity occurring during a brief period of closure (CL) provides opportunity for students to express their understandings or misconceptions about their developing knowledge. This might take place on an exit slip with students responding to a processing question or through a "whip around" activity in which all students respond orally to a question. Such activities can greatly benefit teachers, providing the necessary time and information to determine student learning and shape future instructional activities. These activities can also benefit students by reinforcing and if needed, correcting important lesson takeaways.

The lesson summative assessment should be aligned to the objective and utilized in a way that confirms the objective's attainment or shows areas of additional needs going forward. It is generally given at the lesson's end.

- Homework (HW) should be given with purpose. Teachers should only choose to assign HW if students are prepared for the assignment and the HW supports student learning. When given, a reasonable general rule to follow is ten minutes per grade level for all subjects taken together, or ten minutes total in 1st grade, twenty minutes in 2nd grade, and so forth.

In the previous chapter, three planning questions were offered:

- What is it that I want students to know or be able to do by the end of the lesson?

In answering this question, a teacher states the lesson objective.

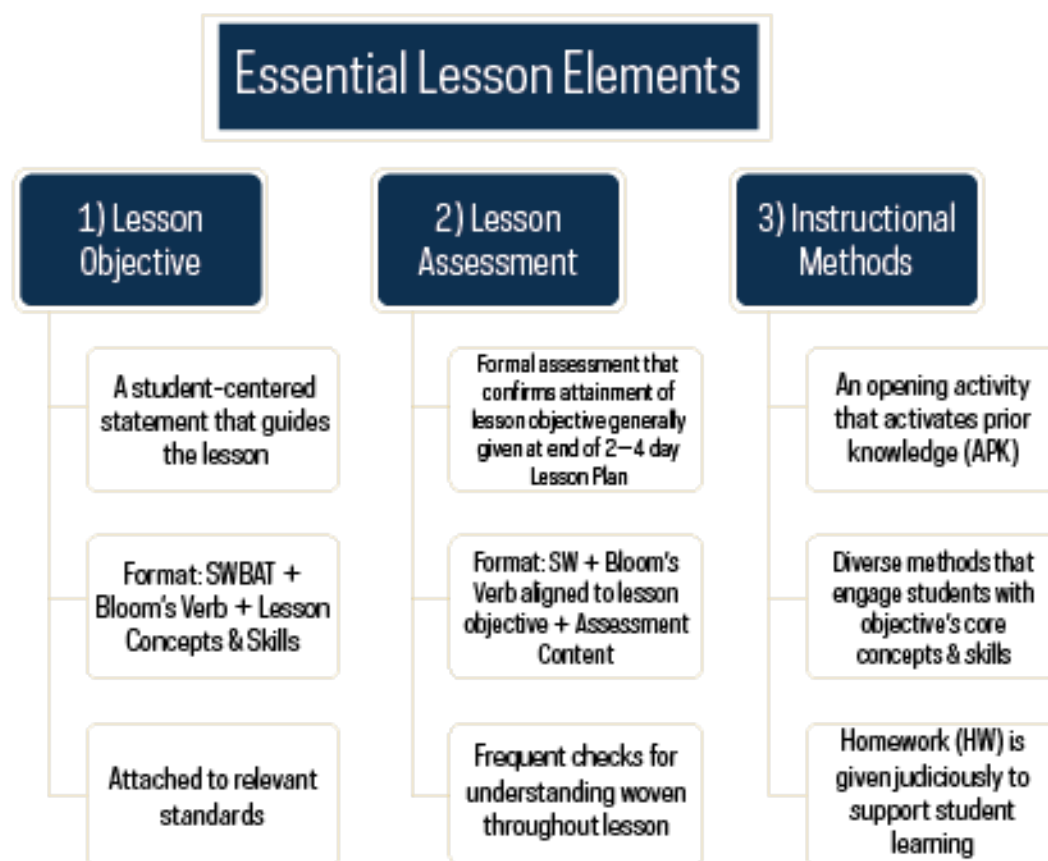
- How will I know if students have achieved the objective?

In answering this question, a teacher chooses a lesson assessment appropriately matched at the same level of critical thinking as the objective.

- What instructional strategies and learning tasks can help students achieve the objective?

In answering this question, a teacher shapes the lesson using diverse instructional methods.

The essential lesson elements can be recognized in the answers to these questions (see graphic).



# ACE Teaching Fellows Lesson Plan Template

Many organizers for lesson planning exist, but ACE Teaching Fellows suggests use of the [following template available as an Excel or Google Sheets file](#). Look at the lesson plan and make note of the lesson elements noted above. Additional details should also be noticed: Attention to TIME holds the teacher accountable for careful planning of all available lesson minutes. Attention to MATERIALS helps the teacher anticipate necessary resources so they are prepared in advance and ready when needed within the lesson. Attention to NOTES allows the teachers to jot down helpful annotations or reminders to support the lesson's implementation.

LP6	2	<b>Objective:</b>	SWBAT examine the artistic works.	<b>Objective:</b> Students will be able to ...concise statement of what students will be able to do by the end of the lesson plan. <b>Assessment</b> answers the question of how it is known that students are able to ...	J.B.5.e.4, J.B.6.e J.B.6.e.4, J.B.6.j
# of days		<b>Assessment:</b>	SW diagram the relationships		Standards
<b>Materials:</b> Poster boards with pictures and poems					
Time	Activity/Methods			A METHOD specifies the instructional approach chosen by the teacher (i.e. DISCUSSION, GROUP WORK, PAIR READING). Activities detail student learning tasks.	Notes
DAY 1					
12	BW - Read Emily Dickinson's "I am nobody, what are you?" What poetic devices do you see? Prayer followed by DISCUSSION of BW - How do the poetic devices help to emphasize meaning?				A notes column office space for adding details helpful for the lesson's implementation.
5	Stating the allotted time helps to evaluate the effectiveness of your planning and teaching.	Visual. Demonstrate how to make connections between the poem and the Dickinson poem.			
5		Second visual. Use questioning technique to guide students in making connections on their own.			
15	FADE - Students will work in groups to determine the theme of each poem or visual and then diagram the connections between them to show their relationships. Groups differentiated on ability with tasks assigned accordingly.			Circle around to check for understanding via observations and questioning	
DAY 2					
2	Prayer, Class Mission Statement				
10	GROUP PRESENTATIONS/PEER ASSESSMENT - Groups will present their findings to another group and assess whether or not the other group is able to accomplish the assigned tasks by answering the following questions: Did they identify the themes? Did they make connections between themes? Did they give reasons to support their connections? Did everything make sense?			Collect peer group assessments afterwards.	
10	CLASS DISCUSSION				
15	ASSESSMENT- Find themes and diagram connections between previously unseen poem and visual.			Assessments include checks for understanding and the end of lesson assessment. Both are used to inform instruction.	

## Activities to Engage & Assess Students in Learning

HS Principal Suarez is strolling the hallway soon after the start of second period. In one classroom, she notes students quietly walking to the front of the classroom and adding phrases to the board where the word, SIN, is highlighted. Across the hall, another teacher is giving directions for a simulation of passing a bill into law. Three doors down, a teacher is projecting three quiz questions related to last night's reading that students are answering on their iPads. HS Principal Suarez goes back to her office eager to chat with these teachers about the progress of their lessons.

In each of these classrooms, students are engaged, but the purposes of that engagement are quite different. In the first classroom, the teacher is activating prior knowledge in order to build upon what students already know about sin. In the second classroom, the teacher is providing a concrete learning experience to help students understand an important government process. In the third classroom, the teacher is assessing student comprehension of nightly reading before proceeding with a discussion of character development.

Activating prior knowledge, using active learning strategies, and assessing student learning to inform instructional decisions are three important lesson structures. This section will address each of these more fully and provide examples of implementation.

## Activating Prior Knowledge

Determining prior knowledge and pre-existing misconceptions can help teachers plan instruction that meets students where they are at. Attaching new knowledge to prior knowledge helps in retention of new information.

Several strategies are helpful for activating prior knowledge, each grounded in research (Dean, et al, 2012). All include cues or questions to get students thinking.

- KWL charts ask students what they KNOW about a topic and what they WANT to learn. The LEARNED category can be completed during closure.
- Advance organizers in the form of anticipation/reaction guides present a series of statements to which students respond in agreement/disagreement or true/false. These guides encourage students to make predictions based upon prior knowledge and evaluate those predictions after exposure to new information.
- Demos, images, quotes, or stories can be used to help students connect new learning with what they already know.
- Chalk talks invite brainstorming about a given topic or phrase through activity in which students write a response at a chalkboard/white board. Discussion can follow encouraging students to look for patterns among the posted words and phrases and to begin to organize them in some sort of meaningful way.
- References to or creation of an anchor chart for a specific concept.

Examples<sup>2</sup>

HS English	MS Science	Elementary
<p>Before beginning to read <i>Lord of the Flies</i>, students take part in a chalk talk. The board is divided in two with the following statements:</p> <p>How will life on the island evolve if Golding has a positive impression of human nature?</p> <p>How will life on the island evolve if Golding has a negative impression of human nature?</p>	<p>In a three-day lesson about chemical reactions, a teacher asks the following:</p> <p>Day 1: When you hear the word "react", what does that mean to you? Give an example.</p> <p>Day 2: You mix two clear liquids and get a brown solid. Has a chemical reaction occurred? Why or why not?</p> <p>Day 3: If you mix vinegar and baking soda, it makes carbon dioxide. How could you write this in an abbreviated way using a mixture of symbols and words? Be creative.</p>	<p>Grade 5 Social Studies Example: Teacher (T) shows a picture of Aztec artifacts and students work in their small groups to infer the purpose of these artifacts.</p> <p>T processes small group discussions with the whole group.</p> <p>Grade 2 Literacy Example: T begins, "Remember yesterday when we built this anchor chart showing the three types of connections good readers make when reading..."</p>

2- This resource provides a few examples but many alternative practices exist.

[Watch teacher Niamh O'Mahony discuss Activating Prior Knowledge in her class.](#) (All videos throughout E-book are available on the ACE Planning Guide YouTube Library)



## Instructional Methods

Methods are the means through which the teacher engages students in building conceptual knowledge and skills. Cohesively structured lessons generally include a variety of strategies that are logically sequenced: each component builds off of the prior one with all of them working together to help students achieve the lesson's objective(s). Choosing methods takes careful consideration. In writing about planning for academic rigor, Duchess Maye (2013) notes that "learning activities that are well-structured, highly engaging, and cleverly designed are ultimately worthless if they fail to meet the intended learning objectives" (p. 36).

It is beyond the scope of this guide to present the plethora of strategies available for planning instruction. Rather, four research-based methods will be noted. Each has multiple variations and applications and can form the foundation for more varied methods.

When making choices pertaining to instructional methods, knowledge construction is an important consideration. It is also important to remember that students learn more when they are actively involved in learning and not simply passive recipients of knowledge. When actively engaged in learning, students are talking and listening to one another and using higher order thinking skills.

As each method is presented, think about your experiences with its use. Is there a method you are immediately drawn to? If so, consider what that preferred method says about you as a learner, as it may influence your preferred teaching methods, possibly even leading to overuse. Consider, also, that your students may have other learning preferences.

Diversifying methods can help with student engagement. Moreover, certain methods work better for specific lesson purposes.

# Direct Instruction

Direct instruction is a teacher-directed method that involves explicit teaching of a concept or skill. When presenting declarative knowledge, direct instruction ensures the transmission of accurate and appropriately comprehensive information, which is clarified in the learners' minds through follow-up questioning and discussion. When presenting procedural knowledge, direct instruction allows for modeling and the sharing of one's thinking with students while engaging in the modeling. Direct Instruction is often best used for content that students could not construct for themselves or where efficiency is of great importance.

When using direct instruction, teaching in small chunks is important.

Rosenshine (2002) writes:

The importance of teaching in small steps fits well with the findings from cognitive psychology on the limitations of our working memory. Our working memory, the place where we process information, is small. It can only handle a few bits of information at once – too much information swamps our working memory. (p. 7)

The practice of using direct instruction is supported by research (Hattie, 2009, Alfieri, et al., 2011) but it can be overused in classrooms. It is recommended that a teacher-directed presentation last no more than 10 – 15 minutes and for early elementary grades perhaps no more than 5 minutes, and be supplemented with active learning strategies.

Example videos of Model, Coach, Fade are available on the ACE Planning Guide YouTube channel.

## Examples of Direct Instruction

HS Science	MS Social Studies	Elementary Math
Referencing web site images viewed by students on individual tablets, a teacher (T) presents the structure and function of the lymphatic system including the composition of lymph and how lymph vessels collect lymph. T pauses occasionally and asks a question for processing in pairs.	Teacher explains that Native Americans are always adapting and adopting technologies of their neighbors and shows several examples (via PowerPoint), prior to asking students to think about technologies Europeans bring with them to trade with Native groups.	Teacher adds the word, thousandths, to the anchor chart and shows how to make models with decimals in the thousandths.

## Questioning

Teachers ask questions with different purposes in mind. Sometimes they ask questions to provide drill and practice, check for understanding, or cue what is important to know. Other times, they ask questions to surface conceptions about difficult concepts, explore student thinking, and encourage diverse points of view. The first group of reasons are readily met with questioning in recitation while the latter group of questions more readily encourages discussion (Walsh and Sattes, 2015). Both types of questions have their place in the classroom.

Concerning questions in recitation, a commonly used questioning pattern is Initiate-Response-Evaluate (I-R-E) in which the teacher initiates a question, a student responds, and the teacher offers evaluative feedback.

Teacher (Initiation): What do we call the imaginary lines around the Earth parallel to the Equator?

Student (Response): Lines of latitude.

Teacher (Evaluative feedback): Correct.

Such an exchange can be repeated several times with little connection between each round. Though this approach might have merit for short reviews of key content, the practice offers little in the way of dialogic classroom interaction or critical thinking on the part of students.

In contrast, questions that promote discussion are open ended and encourage students to think critically. There are many ways to classify such questions but generally all of them engage students at higher levels of cognition.

Inquiry-based questions invite thoughtful contributions, elaboration on ideas, justification of responses and self-evaluation. Smart and Marshall (2013), in their research on classroom discourse interactions write:

Within the inquiry environment, teacher questioning is intended to encourage students to elaborate on previous answers, not to judge the correctness of those responses. Instead of ending the questioning cycle in an evaluative statement, students are encouraged to self-evaluate their answers and justify their claims. By re-directing the evaluative role back to the students, the teacher establishes a climate that values justification, conjecture, and the co-construction of knowledge. (p. 3)

Evaluative questions invite judgments framed by specified criteria. Such questions encourage logical arguments in defense or attack of a position. Questions requesting textual evidence to support a claim fit in this category.

A third category of open ended questions encourage reflection. According to Orlich et.al. (2004), such questions “elicit motives, inferences, speculations, impact and contemplation (p. 241). Such questions challenge students to think critically about perspectives and implications.

As might seem evident, the I-R-E pattern engages students at lower cognitive levels, while inquiry-based, evaluative and reflective questions promote deep engagement of ideas and demand higher levels of cognition.

In deciding questions, a teacher must consider purpose.

- Review of important vocabulary: I-R-E
- Exploration of a science phenomenon: Inquiry-based questions
- Practice of math facts: I-R-E
- Unpacking implications of a historical event: reflective questions

Examples, I-R-E Pattern

HS Math	MS Spanish	Elementary Reading
T checks understanding of the slope intercept form for writing equations as an anticipatory set. If given $y = 3x + 2$ , what is the y-intercept? What is the slope? Is this equation written in slope intercept form?	T reviews clothing related vocabulary using projected pictures for each word.	T guides students in previewing a text using text features. What is the title? What are the headings? Where do we find the glossary? Etc.

Examples, Open-ended questions that encourage discussion

HS Social Studies	MS Science	Elementary Religion
T poses question: "How were the challenges and goals of Reconstruction (1865-1877) similar to and different from the challenges and goals of the American occupation of Iraq (2003-2011)?"	T guides student pairs through 2 demos - DEMO 1: water + baking soda (will bubble); DEMO 2: water + vinegar (will not bubble) followed by discussion.  T asks "What differences did you observe between the vinegar and baking soda?" What do bubbles represent? In which case was a new substance being made? In which case was a chemical reaction occurring and why?	After reading about the lives of saints, T facilitates a discussion through questions such as, "Why do we celebrate saints from long ago? How can we be like saints in our world today?"

## Facilitating a Discussion

Open-response questions can be used to unpack meaning of concepts, promote argument with an expectation of evidence-based support, or encourage evaluation of text or other resources. When asking open-response questions, discussions provide a means for multiple students to contribute, listen to one another and learn from each other. No student is too young to learn how to engage in productive discussions but having a productive discussion doesn't just happen automatically. Within all grade levels, a teacher must teach discussion skills by modeling expectations, coaching the practice of routines, and then fading to allow students to take ownership.

Consider the infographic on the next page regarding the varied components for leading a productive discussion. Note that in addition to setting the purpose for the discussion and guiding it, a teacher sets the structures that will promote productive student engagement. These might include the provision of processing time before beginning a discussion, use of scaffolds (prompts, cues, and courtesies) to advance participation, and an expectation of some form of product to hold students accountable.

A quality discussion demands thoughtful preparation for meaningful engagement and must be planned in advance of a lesson. When planning, a teacher might write an architecture of 2 or 3 questions (Doyle, 2014) about significant core concepts to guide a discussion. During the lesson, responses to each planned question prompt follow-up questions until the teacher is assured that students have thoroughly grappled with the concept or skill. In this way, a discussion is a means for students to talk-to-learn, rather than talk for talk's sake. Here is an example of a 5th grade Math teacher's architecture of questions as it would be written in a lesson plan and then as it actually unfolds during a lesson. These questions are prepared for the 2nd day of a lesson plan on multiplication of fractions and whole numbers.

### Written in Lesson Plan Template:

Write these number statements on the board: 6th Gr:  $\frac{4}{5}$  of 25 desks, 7th Gr:  $\frac{3}{4}$  of 24 desks, and 8th Gr:  $\frac{2}{3}$  of 27 desks.

Questions:

I walked by the three middle school classrooms yesterday and observed how many desks were filled in each class. Which class had the most students?

Which class had the most empty desks?

One class had the desks arranged evenly in rows of 6. Which class could this be?

Set a purpose for discussion	<ul style="list-style-type: none"> <li>▪Brainstorm new ideas, perspectives or phenomena</li> <li>▪Activate prior knowledge</li> <li>▪Come to a conclusion</li> <li>▪Lead with use of a strategy (e.g. comprehension, observation, etc)</li> </ul>
Foster Discussion	<ul style="list-style-type: none"> <li>▪Use a shared experience or text</li> <li>▪Refer to prior knowledge or ideas</li> </ul>
Structure Discussion	<ul style="list-style-type: none"> <li>▪Whole group</li> <li>▪Small group</li> <li>▪Fishbowl or other organized structure</li> </ul>
Prepare for Discussion	<ul style="list-style-type: none"> <li>▪Provide think time and wait time</li> <li>▪Turn and talk</li> <li>▪Think then talk</li> <li>▪One minute paper (Write then talk)</li> </ul>
Scaffold Discussion	<ul style="list-style-type: none"> <li>▪Teach appropriate use of language</li> <li>▪Teach conversational turns</li> </ul>
Conclude Discussion	<ul style="list-style-type: none"> <li>▪Consider a product</li> <li>▪Notes</li> <li>▪Classroom Anchor Chart</li> <li>▪Informal Writing</li> </ul>

### In Practice in the Classroom:

In the provided example, an architecture of three questions is noted in the lesson plan, while the actual exchange during the lesson includes others (see italics) deemed necessary by the teacher as the lesson unfolds. An architecture of questions guides a discussion but does not restrict the teacher should specific needs be revealed. It is important to realize that planning too many questions in advance of the lesson can be restrictive to the flow of a discussion as it occurs, while writing down no questions in advance of the lesson could limit the quality of a discussion and/or move the focus away from the core concepts or skills.

Equally important in the planning process is considering the discussion form (whole group, small group, pair exchange); strategy (e.g. use of a processing tool like a “see, think, wonder” organizer); and expected outcome (a student product, a class anchor chart, etc.). All of this is given consideration before the lesson begins.

Teacher begins her lesson with question 1 from her lesson plan:

"I walked by the three middle school classrooms yesterday and observed how many desks were filled in each class. Which class had the most students?"

In class, students work out the answer to question 1 on their individual white boards. After allowing wait time for students to calculate their responses, the teacher polls the class on their responses. Noticing confusion for some students, she prompts several students with correct responses to provide how they came to a conclusion. Students provide a variety of methods, from visual fraction models to standard algorithms. The teacher ensures students answer "why" their method is accurate with questions such as "how do you know you should multiply" and "why are there 5 groups of 5 desks in your visual." Tending to misunderstandings related to fractions representing whole numbers, she then asks, "how many students are in each class?" Here, she follows up with those students who were confused earlier.

The teacher then moves to question 2. "Which class had the most empty desks?"

Students quickly calculate the result and then the teacher follows up by asking "what fraction of desks are left empty in each class?" Some students quickly see  $\frac{1}{5}$ ,  $\frac{1}{4}$ , and  $\frac{1}{3}$  while others simplify the fraction of empty desks to total desks,  $\frac{5}{25}$ , etc. The teacher checks for conceptual understanding of a fraction of a whole number asking "what does  $\frac{1}{3}$  of 27 mean?"

She moves to question 3. "One class had the desks arranged evenly in rows of 6. Which class could this be?"

Students arrive at the answer multiple ways. The teacher leads the discussion toward a visual model of the problem with questions such as "how many equal partitions of 24 do we have?" and "how many desks are in each group then?" Students arrive at a model of 4 groups of 6 desks, with students in 3 of those groups.

During the discussion, a teacher promotes productive talk by attending to many things: the quality of questions and follow up questions, response time (allowing sufficient time for processing questions or text by students), equitable participation, off-target commenting, etc. Teaching response starters to students and then holding them accountable for their use can be an especially helpful undertaking. See the infographic on the next page for examples.

For Teachers	For Students
Talk Moves	Talk Moves
Ask: Why?	I agree with... I think that...
Ask: Can you give me an example?	Can you clarify what you are saying?
Ask: What makes you say that?	In contrast to what you are saying, I...
Ask: Does anyone agree/disagree?	According to the text...
Ask: Who has another opinion?	This shows that...
Discussion Moves	Discussion Moves
Sit among your students	Use evidence and examples to back comments and ideas
Keep track of time	Speak to your peers, not only your teacher
Do not repeat everything your students say	Come prepared to discuss
Encourage Evidence-based language	Come prepared to listen



## Group Work

Group work is a broad term that encompasses any instructional strategy where students work with at least one of their peers. Strategies such as pair shares, "Turn and Talk," House teams, and table talks are all examples of group work in the classroom.

Cooperative learning groups are an effective type of group engagement grounded in extensive research and developmental theory (Vygotsky, 1978; Marzano et al., 2001, Dean, et al., 2012). Though cooperative groups can vary slightly (Johnson and Johnson, 1999; Cohen, 1994; Kagan, 1990 all offer slightly different variations), they are minimally characterized by positive interdependence and individual accountability. Positive interdependence emphasizes that the work is shared, oftentimes aided with assigned roles and clearly defined responsibilities. Individual accountability requires that every group participant demonstrates proficiency of the group-related learning activity through a required individually completed component (e.g. a written assignment or possibly an oral contribution).

Cooperative learning groups are most effective when teachers have set effective group procedures to ensure both positive interdependence and individual accountability. Group procedures should be clearly practiced before the activity, illustrating the expectations and norms of the cooperative group. The activity should have a clear instructional purpose, based on the lesson objective, that all members of the group work toward. Finally, cooperative groups often work best when the size is kept small; no more than five students per group if possible (Lou et al., 1996). Larger groups may threaten the fidelity of both individual accountability and positive interdependence.

Examples of group work activities are on the next page.

HS Religion	MS Math	Elementary Reading
<p>In pairs:</p> <p>Partner 1 will analyze the week's Old Testament reading for main ideas, narrative flow, and message.</p> <p>Partner 2 will do the same analysis of the Gospel reading.</p> <p>After each partner has made their list they will come together to search for overlap and each create their own Venn Diagram utilizing the work of the other and their collective work so that each departs the group with a successful set of notes for the week's readings.</p> <p>(Could also be done with additional readings for week and or previous week and the hymns chosen.)</p>	<p>In Pairs:</p> <p>Each pair is given a different linear equation.</p> <p>Student 1 will graph the equation.</p> <p>Student 2 will complete the standard table of values for the function.</p> <p>Then, together, the pair will write a situation that could be modeled by the given equation.</p> <p>Once complete, pairs will then share their situations with another pair.</p> <p>Students then write an equation to solve the situation and compare it with the original, checking for consistency.</p>	<p>In groups:</p> <p>Students discuss predictions related to a story they are studying. They must agree/disagree with each group member's predictions and state why.</p> <p>Students then make future predictions based on what they discussed in their groups.</p>

# Differentiating Instruction

Teachers must “study and distinguish the makeup of students in order to treat each one according to his or her specific needs, and prepare classes well.” - Blessed Basil Moreau, Christian Education, 1856

While the term “differentiation” is relatively new in education, the concept has clear, historic roots in effective teaching as even this reference in an 1856 manuscript reveals. In Catholic education, we acknowledge that students are uniquely created by God and each has specific learning strengths, needs, and interests. It is the responsibility of the teacher to attend to their needs to maximize their learning. This same idea is behind differentiated instruction. Differentiating instruction is a method that seeks to meet the specific needs of the diverse learners in the classroom through varied instructional approaches and appropriately chosen expectations. Differentiation demands careful and ongoing assessment to determine student needs and then thoughtful planning to meet students where they are at.

Differentiation might target content, process or product (Tomlinson, 1999). An example of content variation might involve students reading leveled texts to gather information about a concept under study. An example of process variation occurs quite naturally during instruction as a teacher varies strategies to engage students. In other words, multiple means for taking in information are provided. An example of product variation would involve designing assessments that address the learning target but represent different outputs. There are many ways to differentiate instruction. Two examples are the use of learning centers and tiered assignments and assessments.

Learning centers provide activities for reinforcement or enrichment. Pocket folders or learning stations contain a collection of materials that students use independently or within groups to explore a topic or practice a skill. In using centers, a teacher considers assessment data to determine how best to organize students, then prepares centers ensuring all required materials for achieving a specified task. Clear directions and the requirement of some sort of output are important considerations.

A good example of a centers model for differentiation is blended learning, the practice of engaging students through a combination of live and online delivery of content and instruction. In a blended learning model, one group of students might work at computer stations using programs that allow them to work at their current level of ability. Such programs provide instantaneous feedback to help students progress in learning. All the while, the classroom teacher might be meeting with another group for directed instruction and discussion.

In their book, *Integrating Differentiated Instruction and Understanding by Design* (2006), Tomlinson and McTighe describe tiered instruction. They write,

Tiering is a readiness-based instructional approach in which all students work with the same essential knowledge, understanding, and skill but at different levels of difficulty based on their current proficiency with the ideas and skills. Tiering allows a student to work both with critical content and at an appropriate challenge level. (p. 107)

With tiering, students work at different levels of difficulty to meet a learning objective. Tiering can vary in many ways, for example, by complexity (tiered questions asked during lessons or on exams, prompts, or activities increasing in degree of difficulty), resources (use of materials at various reading levels), or product (variation in final expectations).

### Examples of differentiation

HS English	MS Social Studies	Elementary Reading
<p>At the start of a lesson on characteristics of heroes, three journal prompts are provided with questions increasing in complexity. Tier one: Name two American heroes and describe their heroic traits. Tier two: Choose two American heroes and compare them. What are their common heroic characteristics? Tier three: Rank order three American heroes. Provide reasons to substantiate your ranking.</p>	<p>At the start of a new unit related to the study of Africa, students are placed into leveled groups and provided an article from different sources – each written at a different reading level – in order to glean information.</p>	<p>A teacher structures reading rotations (<a href="https://www.thedailycafe.com">https://www.thedailycafe.com</a>) that include:</p> <ul style="list-style-type: none"> <li>-Reading to self</li> <li>-Reading to someone</li> <li>-Listen to reading</li> <li>-Word work</li> <li>-Work on writing</li> </ul> <p>While students are engaged in one of the activities, the teacher meets with individual students to set next step goals.</p>

# Assessing Instruction

Each lesson contains a combination of informal, non-graded, checks for understanding and a lesson summative assessment to determine whether students have achieved the lesson objective. In the ACE model, both of these are considered **FORMATIVE** assessments providing an opportunity to monitor student learning, provide ongoing feedback and adjust teaching as necessary.

Formative assessments work best when they assess all learners and not simply those raising a hand to answer a question. Use of small white boards to note individual answers, use of exit slips at the end of a day's lesson, or use of technology applications that include built in checks for understanding are examples. Additionally, teachers might informally assess students when they "cold-call" random students (Lemov, 2014).

## Examples of checks for understanding:

HS Social Studies	MS Language Arts	Elementary Subject
<p>Following a class discussion of the different philosophies and approaches of W.E.B. Du Bois and Booker T. Washington, students answer the following questions on an exit ticket:</p> <p>"Did slavery cause racism or did racism cause slavery?" What would Du Bois say? What would Washington say? What do you think?</p>	<p>Groups of students are given strips of paper with a sentence on them. Groups are asked to order themselves in a line up activity according to how they think the sentences work together to form a cohesive paragraph.</p>	<p>T reads definitions as students write matching vocabulary words on individual white boards.</p>

A lesson's summative assessment typically occurs at the end of a multi-day lesson and assesses student mastery of the lesson objective. It may or may not be graded depending upon how it is introduced to students. The assessment is completed independently by each student. A quiz, a paragraph response, or completion of an organizer are examples of possible written assessments while spoken responses to T-directed questions in a new language under study is an example of an oral assessment. Whatever the form, it is recommended that such assessments be kept brief; depending on the format, a lesson plan assessment like a quiz may only need to be five questions long, for example. A teacher should plan to have a typical end of lesson assessment take students about ten minutes to complete.

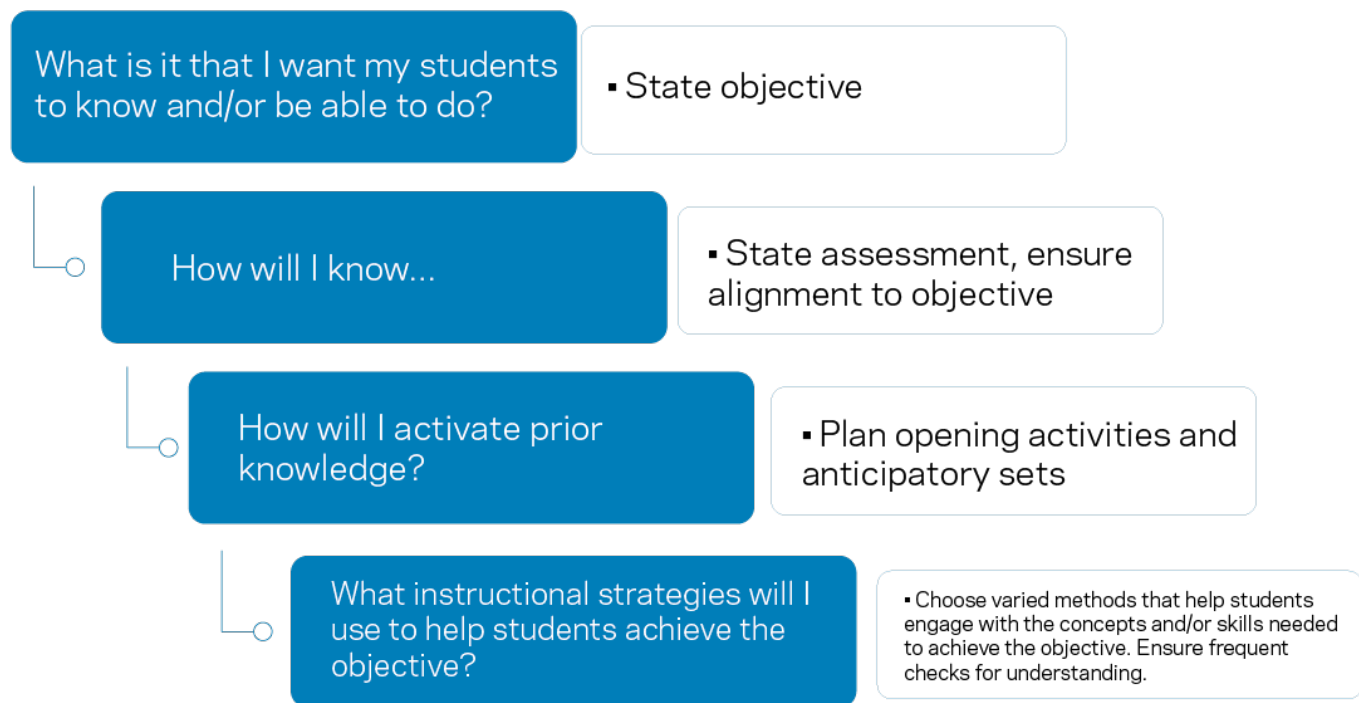
While denoted as a summative assessment, it remains important that it also serve a formative role to inform future instruction.

### Examples of lesson summative assessments

HS Spanish	MS Social Studies	Elementary Math
<p>T provides students a written activity to be completed independently while meeting with students individually to orally assess their responses to a series of three questions.</p> <p>Objective: SWBAT say hello and goodbye to various types of peoples based on changing contexts of time and relation with the person to whom they are speaking.</p>	<p>Students are asked to write a press release as if they were a news reporter covering the Stock Market crash in 1929.</p> <p>Objective: SWBAT describe the causes that sparked the Great Depression.</p>	<p>T provides each student with a regularly shaped object and ruler. Student are asked to measure L, W, and H to the nearest inch, half inch, and quarter inch.</p> <p>Objective: SWBAT measure length to the nearest inch, half inch, and quarter inch.</p>

# Summary

Planning quality lessons is an essential responsibility of teaching. This chapter has presented several important aspects to consider. Here is how a teacher might engage in planning a lesson:



Take time to walk through these questions as you begin the process of lesson planning.

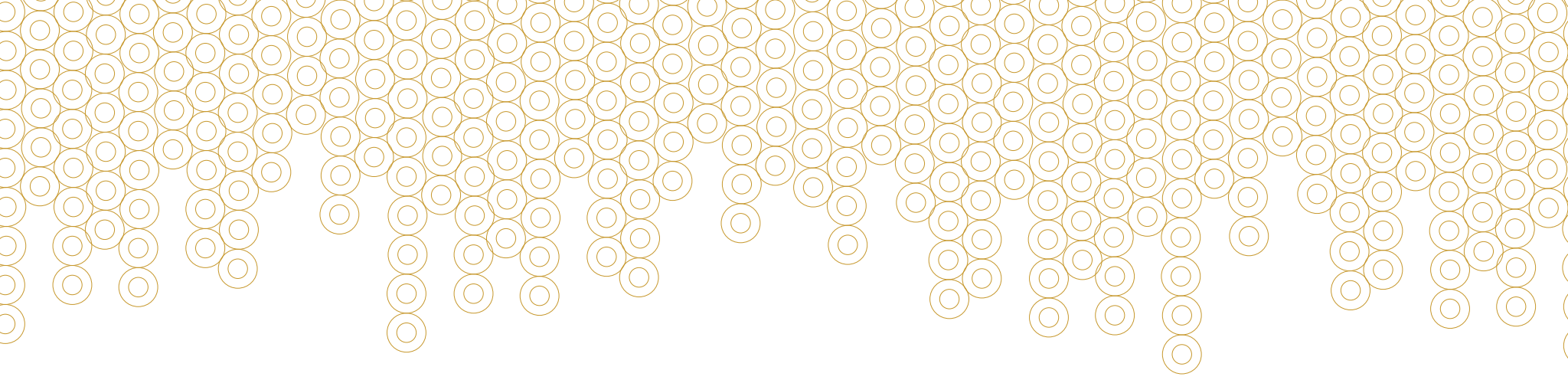
## Questions

The last chapter ended with three sample objectives with assessments aligned to them. Revisit these objectives and once again note the key concept or skill emphasized. After doing so, consider the prompts on the next page.

Objective:	SWBAT <b>compare and contrast</b> the differing effects of the American Transcontinental Railroad and the Russian Trans-Siberian Railroad.
Assessment:	SW <b>differentiate</b> effects of the American Transcontinental Railroad and the Russian Trans-Siberian Railroad through a comparison chart of specific locations.
Objective:	SWBAT <b>infer</b> character traits using evidence from a text.
Assessment:	SW <b>infer</b> character traits about characters in <i>To Kill a Mockingbird</i> in a graphic organizer.
Objective:	SWBAT <b>calculate</b> the exact change needed in a transaction.
Assessment:	SW <b>calculate</b> the exact change needed to give a classmate in a shopping problem solving scenario.

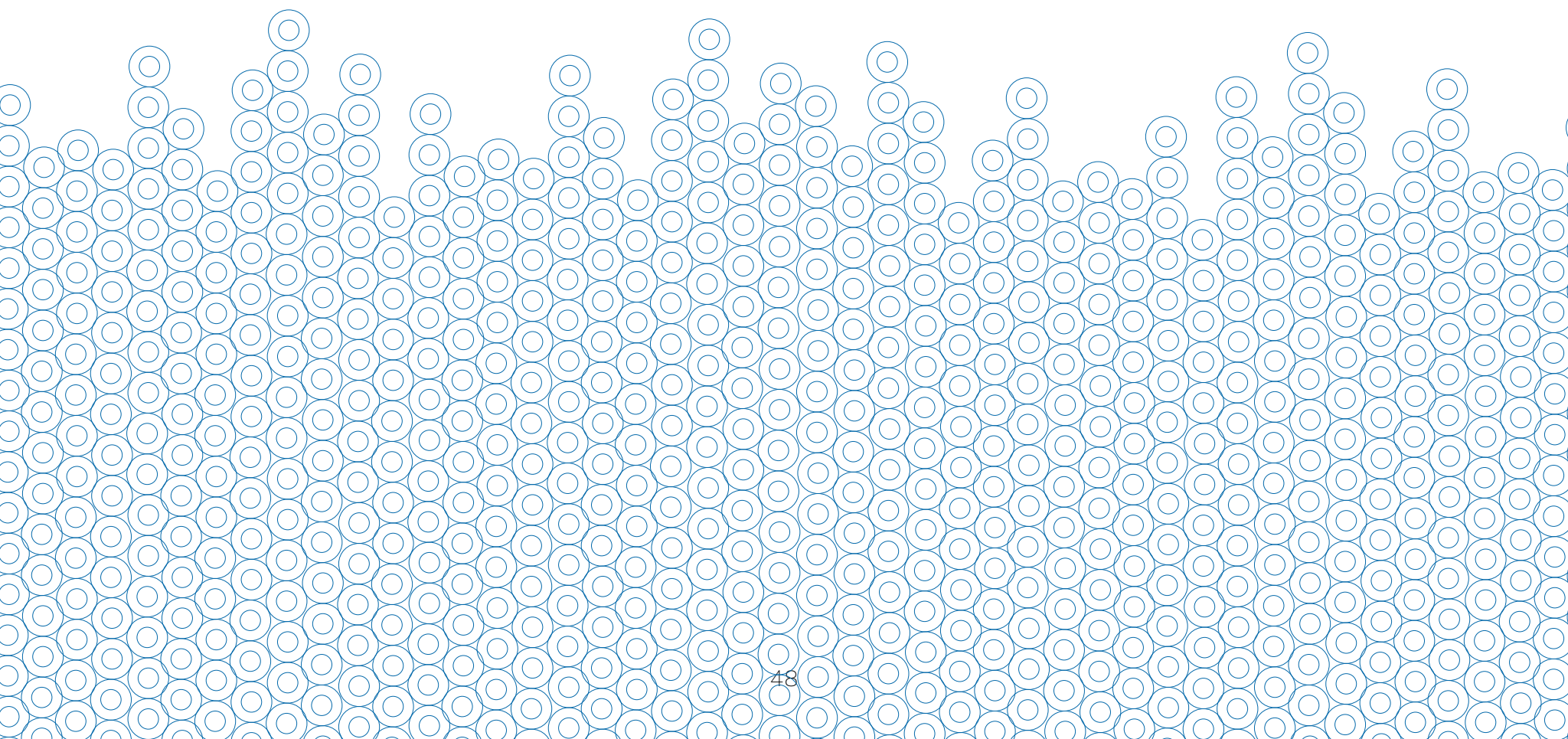
1. Choose one of the objectives and think about how you might go about activating prior knowledge.
2. Realizing that effective teachers use varied methods to help students attain lesson objectives, what student-centered methods could you use to facilitate student interaction with the chosen objective's concept or skill?
  - a. How would you structure a discussion to engage students with the concept or skill?
  - b. What tasks and instructions would you give for productive group work with the concept or skill?
3. As referenced at the beginning of this chapter, objectives are connected to learning outcomes or standards specified by the state or diocese. Depending on your school's curricular choices, these standards may be from the Common Core State Standards (CCSS), the Next Generation Science Standards (NGSS), or standards specific to your state or diocese. Access your school's website and/or the diocesan website to try to identify which standards your school uses.





# Chapter 3

## Sample Lesson Plans



# Introduction

The previous chapter introduced essential elements of an effective lesson plan:

- Lesson objective(s)
- Reference to Standards
- A brief opening activity (an anticipatory set) that activates prior knowledge and/or points students toward the day's purpose
- Instructional methods to engage students with the objective's core concepts and skills (the declarative and procedural knowledge important to the lesson)
- Frequent checks for understanding (Formative Assessment)
- A brief period of closure to provide some sort of end of lesson processing activity
- A lesson summative assessment at the end of the lesson

In this chapter, six lesson plan examples are provided. Each offers more detail than typical lesson plans in order to help you see the above-mentioned components clearly and grasp how the teacher is building conceptual knowledge and skills. Generally however, lesson-planning needs to strike a balance regarding the amount of detail. Too much and lesson planning becomes tedious. As a result, teachers might not plan regularly and their lessons become less effective. On the other hand, when there is too little detail, lessons could be disjointed. With little detail to reference, teachers might be ill-prepared to uncover misconceptions, question students to help them make connections, or engage students with the material in increasingly sophisticated ways (Doyle, 2014).

Effectively planned lessons maximize student thinking and skill through activities that shift content responsibility from the teacher to students. Students demonstrate achievement independently and individually on previously unseen material, and instructional activities prepare them to be self-reliant thinkers and users of knowledge.

As you consider each of the sample lesson plans, think about the progression towards self-reliance. Consider the declarative knowledge and procedural knowledge that are necessary to teach in order for students to successfully obtain the objective. Note the learning tasks that are planned to help students build the necessary conceptual knowledge and skills to become self-reliant thinkers and users of knowledge. Consider the timing associated with each activity and ways the teacher plans to differentiate instruction. Think about alternative tasks and approaches that could work realizing there are many ways to plan a successful lesson.

# Common Abbreviations Used in Lesson Plans

## - Activating Prior Knowledge

APK	Activate Prior Knowledge
AS	Anticipatory Set
BW	Bellwork
WU	Warm Up

## - Instructional Methods/Activities

DI	Direct Instruction
GW	Group Work
PW	Pair Work
TTT	Think Then Talk
CS	Class Discussion

## - Assessment

ChU	Check for Understanding
FA	Formative Assessment
SA	Summative Assessment

# 9th Grade Social Studies

2	Objective:	SWBAT compare and contrast motivations and impact within interactions between European explorers and Natives in Latin America and the Caribbean.	Standards:  UCLA National Standards in World History: Era 6: 1B, 4A. CCSS.ELA-LITERACY.RH.9-10.9
	Assessment:	SW compare and contrast motivations and impact using a three-circle Venn Diagram.	
Materials: Primary source passages from Columbus Reports on His First Journey, 1493 and Hernan Cortés Second Letter to Charles V, 1520			
Time	Activity/Methods		Notes
<u>Day 1:</u> 6	WU: What do you think the relationship between settlers and Natives is typically like? - Prayer - Process WU		
10	PW: Map Skills European Exploration		
15	PW: Excerpts from <i>Columbus Reports on His First Journey, 1493</i> and Hernan Cortés <i>Second Letter to Charles V, 1520</i>		Provide annotated passages to struggling readers.
10	GROUPS: Compare and contrast readings. (ChU)		
5	CLOSURE: On an exit ticket, summarize one comparison from pair reading.		
HW	Read the excerpt from Bartoleme de Las Casas "Brief Account of the Devastation of the Indies (1542)." Summarize his main points. Consider how the description from Las Casas differs from those of Columbus and Cortés.		Encourage students to make GO.
Day 2: 6	WU: How do you think motivations for exploration affected the relationship between settlers and the natives?		
5	Prayer. - Process WU		
25	FA: Reading Quiz		
10	Primary Source Jigsaw of Native/Settler Interactions		
25	SA - Graphic Organizer Summary: Three circle Venn Diagram comparing and contrasting the motivations of Cortés, Columbus, and Las Casas.		

# Middle School Science

3	Objective:	SWBAT explain cellular respiration as a chemical reaction with reactants, products, and two distinct steps.	Standards:  MS-LS1-1; MS-LS1-2
	Assessment:	SW explain the chemical process of cellular respiration through a traditional quiz.	
Materials: modified version of medical mystery; copy paper and markers for foldables; post-its for FA			
Time	Activity/Methods		Notes
Day 1: 15	Play two clips and makes a mixture of Kool-Aid for students to enjoy. Students have to classify if each of those situations is a chemical reaction or not and why and if so, identify reactants, products, and write chemical equations.		<a href="https://www.youtube.com/watch?v=DITY2rXYU-I">https://www.youtube.com/watch?v=DITY2rXYU-I</a> ; <a href="https://www.youtube.com/watch?v=8tHOVVgGpk">https://www.youtube.com/watch?v=8tHOVVgGpk</a>
5	IW - Students write answers to questions in their notebooks What organelle is called the powerhouse of the cell? Why is this organelle named the powerhouse of the cell? What chemical reactions could occur here?		
10	DISCUSSION - Discuss answers to IW How could our mitochondria make energy? What do we take into our bodies to provide us with energy? How do our cells turn the food we eat into energy that we can use?		Purpose: Associate mitochondria with energy production from food
15	PAIR WORK - Explain modified version of medical mystery (Puzzling Phenomenon) Students read medical mystery and write explanations and drawings on a piece of copy paper to explain what is going on. Students compare notes.		<a href="http://sm.stanford.edu/archive/stanmed/2009fall/article5.html">http://sm.stanford.edu/archive/stanmed/2009fall/article5.html</a>
5	Post-it note assessment - How do chemical reactions like those we have seen the past three days relate to what goes on in our body?		
HW	None		
Day 2: 10	BW: What sorts of things do humans need to stay alive? Prayer followed by BW Review		
8	CLASS DISCUSSION Project images of food labels with glucose, fructose, and sucrose in the labels What kinds of ingredients are common across these foods? What are glucose, fructose, sucrose?		
12	LECTURE - different types of sugar (what do we mean by this? What do they look like on the molecular level? On the macroscopic level?); carbohydrates monomers are sugars (students have learned this previously)		

5	PAIR SHARE/CLASS DISCUSSION - What types of other organisms besides humans need food and oxygen to survive?	Purpose: This cellular respiration reaction we are about to talk about does not just take place in humans.
12	LECTURE/MODEL/FOLDABLES - Cellular respiration as a chemical reaction (What does this mean? From previous lesson, students should be able to explain that reactants will combine to form new products); reactants; products; in what sorts of organisms does this reaction happen?; do living organisms have to be able to breathe to get oxygen?	Students create foldable with picture of mitochondria and "Powerhouse of the cell" on the front and reactants under one flap and products under another flap.
3	fill out assignment notebook; pack up	
HW:	Scaffolded worksheet where students have to explain where oxygen and glucose comes from for cellular respiration in plant, animal, and bacteria and how the products are formed in all of these cases; additionally, students have to draw a picture to represent each reactant and a picture to represent each product of the cellular respiration reaction to help them visualize/remember	
Day 3: 13	BW: What is cellular respiration? Why is it considered a chemical reaction? Prayer followed by BW and HW discussion in pairs and then large group.	
18	PAIR SHARE/CLASS DISCUSSION - What types of other organisms besides humans need food and oxygen to survive?	
10	VIDEO/Recap of cellular respiration as a chemical reaction - review active/passive transport -- how is this playing a role? - how is energy store and transferred in the cell? - how is energy used by one cell? How is this related to the energy needs of the whole body?	<a href="https://www.youtube.com/watch?v=i8c5JcnFaJ0">https://www.youtube.com/watch?v=i8c5JcnFaJ0</a> - only watch first 5 minutes
5	CLASS DISCUSSION - What are possible questions I could ask on tomorrow's quiz?	
3	FA - TTT (Top three takeaways) about cellular respiration reaction	
2	fill out assignment notebook; pack up	
HW:	Students have to write a paragraph in their notebook explaining the process of cellular respiration including the following vocabulary terms: oxygen, glucose, carbon dioxide, water, ATP, energy, reactants, products, mitochondria, cytoplasm. Terms must be underlined in their paragraphs. Study for quiz	
Day 4: 5	PAIR SHARE/HW Review	
15	SA: Quiz	

# Elementary Religion (Grade 4)

2	Objective:	SWBAT give examples of the Beatitudes in daily life.	Standard: 4.06.01 Give examples of how the Beatitudes show us to trust God, forgive, and have mercy for others.
	Assessment:	SW describe scenarios that exemplify the Beatitudes in daily life.	
Materials: Worksheet, Religion Textbook, Peacemaker's Prayer, Construction Paper, The Giving Tree by Shel Silverstein.			
Time	Activity/Methods		Notes
<u>Day 1:</u>	BW: What does it mean to be happy?		
2	Choral reading: The Beatitudes, Matthew 5:3-12		Project passage on SMART board.
6	Whole-Group Discussion: How do the Beatitudes show us how we can be truly happy?		
12	Read-Aloud: The Giving Tree by Shel Silverstein Teacher stops every few pages to ask "which of the Beatitudes does this look like?" "Which Beatitude does the tree model?" Student scribe writes reflections on board as students listen.		
6	DI: Graphic Organizer T-Chart: Teacher models how the Giving Tree compares to the Beatitudes. T-Chart: Giving Tree v. Beatitudes (Tree-happy, selfless, service-- Beatitudes-community, others, happiness, discipleship)		
4	FA: How can you pursue true happiness and share happiness as a disciple?		
HW:	HW: Brainstorm someone who helps you understand what true happiness means by their actions...not their words!		
Day 2: 2	Prayer: Peacemaker's Prayer: Students read different sections of prayer highlighted as a chorus.		
5	DI: Students take notes in religion journal. - Overview of St. Francis' call to serve others as a living example of the Beatitudes		
5	Chalk Talk: Students respond to the prompt "How can we share the joy of the Gospel?"		
10	Student Beatitude Skits: Students spend 5 minutes prepping their skits for the class. Students perform their 30 second skits for students to guess which action connects to a certain Beatitude.		
10	SA: Blessed Are They Worksheet-Students choose three Beatitudes and provide scenarios showing the chosen Beatitudes.		

# 9th Grade Algebra I

3	Objective:	SWBAT construct linear models of real world situations to solve problems.	Standards:  CCSS.M.HSF.LE.A.2, CCSS.M.HSF.LE.B.5
	Assessment:	SW construct a linear model of a business situation to solve a problem on profit/loss.	
Materials: Need projector, student Chromebooks, Quiz			
Time	Activity/Methods		Notes
Day 1: 7	APK followed by Prayer and CD Graph and complete the standard table of values (-2,-1,0,1,2) for the function $f(x) = -4x+8$ . Define the slope and y-intercept. Evaluate the function for $x = 5$ .		Review APK questions and focus on conceptual understanding of slope & intercepts
10	CD: The Cost of College - is it worth the money? Read situation to students "The cost of college has risen dramatically over the last two decades. Many parents and students are now asking is it actually worth it to attend college?" 1. Gauge initial reactions on yes/no. 2. How can we use math to back up our yes/no? 3. What do we need to define? (Measures of success, i.e. what would make it "worth it") 4. Project tables of data on cost at private & public colleges, average salaries of those with college degrees and those with high school diplomas.		
10	MODEL for class how you would construct a linear function for profit. (Mention simplifications of problem here) What are the costs? What are the sources of income? Begin with function for high school diploma. Then function for college degree. Be sure students focus on what the independent and dependent variables are (time & profit). $x =$ years after HS Choose flagship state public university's data for function. College: $P_c(x) = \text{Avg Annual Income} * (x-4) - \text{Cost of 4 year degree}$ High School: $P_h(x) = \text{Avg Annual Income} * x$ Students will take notes and participate in construction of a linear model to help answer the question.		
5	ChU - Students answer question - If you go to college, how many years would you need to work before you would break even?		Assess if students have conceptual understanding of the function and can solve for $P_c(x) = 0$ .



15	PW: In pairs, students answer question - How many years would you have to work after college for it to be more profitable than working straight out of high school? CD to review question.	Ensure they are on right track to solve either by constructing a table, graphing or algebraically.
3	FA/CLOSURE - Google Form Exit Ticket on correct linear model for a given situation. HW	
Day 2: 7	APK - Prayer - CD Graph and complete the standard table of values (-2, -1, 0, 1, 2) for the function $f(x) = 3/4x + (-2)$ . Define the slope and y-intercept. Evaluate the function for $x = -4$ .	
10	CD - HW Review Review 3 problems of need. Check for understanding for the variables and construction of the function.	
8	GW: Introduce situation. Show two graphs on Geogebra (one continuous, one discontinuous). In teams, students write situations that could potentially be mathematically modeled by the functions graphed on the board.	Monitor situations and check for understanding.
15	CD: 1) Project situations and review. 2) What do we pay attention to in the graphs? Slope, y-intercept, continuous, decreasing, or increasing = what does these mean for our situations? 3) Why do we model situations mathematically? What do we gain?	
5	ChU - Choose one of the situations and models from last exercise. Ask a question based on that situation. (i.e. How much further did the car travel after the 1st hour?) Students answer on white boards.	
5	FA/CLOSURE Given situation, construct linear model and write into Google Form. HW given.	

Day 3: 7	APK - PRAYER - CD Write a linear model for the situation projected. Then use the model to solve question.	
10	CD - HW Review Review 3 problems of need. Check for understanding for the variables and construction of the model.	
8	PW: Back to situation on Cost of College - what about impact of grad school? Introduce situation of obtaining a full-time MBA with costs, years of school, and change of salary. Once complete, review models with class as a whole.	
7	IBW/ChU: Students answer question - If you get an MBA, how much longer would it take you to break even? If you work until you are 60, would you make more with an MBA, undergraduate degree, or high school diploma?	
8	CD: What else might matter in the decision on going to college? What have we not modeled mathematically? Could we model it?	
10	SA- QUIZ: SW construct a linear model of a business situation to solve a problem on profit/loss.	

# MS Spanish

2	Objective:	SWBAT describe the physical and personality characteristics of themselves and their families.	Standards:  PFL.T4.O1: F: Opposites (extended to adjectives)
	Assessment:	SWBAT describe themselves and their families via an oral assessment.	
Materials: cartoon character pictures			
Time	Activity/Methods		Notes
<u>Day 1:</u>			
2	Lead Prayer		
5	REVIEW-Identify family vocabulary when prompted by a picture		
20	DI - present pictures of cartoon characters to demonstrate adjectives. Students repeat word when prompted		
10	Determine how to change endings of adjectives after viewing them in context (in singular form only), and change adjectives when prompted for examples		
8	FA - Complete a worksheet in which they select the Spanish word that describes the person/animal pictured. Student volunteers will share answers		
3	FA - Draw a picture of three family members and write a sentence that describes them, following the model.		
<u>Day 2:</u>			
2	Lead Prayer		
5	BW - Start working on their sentences/pictures from previous class		
6	REVIEW/FA: When prompted with pictures, write the appropriate adjective on their white board that best describes the picture		
14	CLT-STYLE INTERACTIVE LECTURE Orally describe some of the family members they have drawn Construct the way to ask and tell about someone in your family Repeat process to describe themselves		
10	PS - Interview each other about themselves and their families		observe, answer questions, and prompt corrections when applicable
8	SA - Students continue to work on their family pages while teacher orally assesses with questions about themselves and family members.		

# Elementary Reading

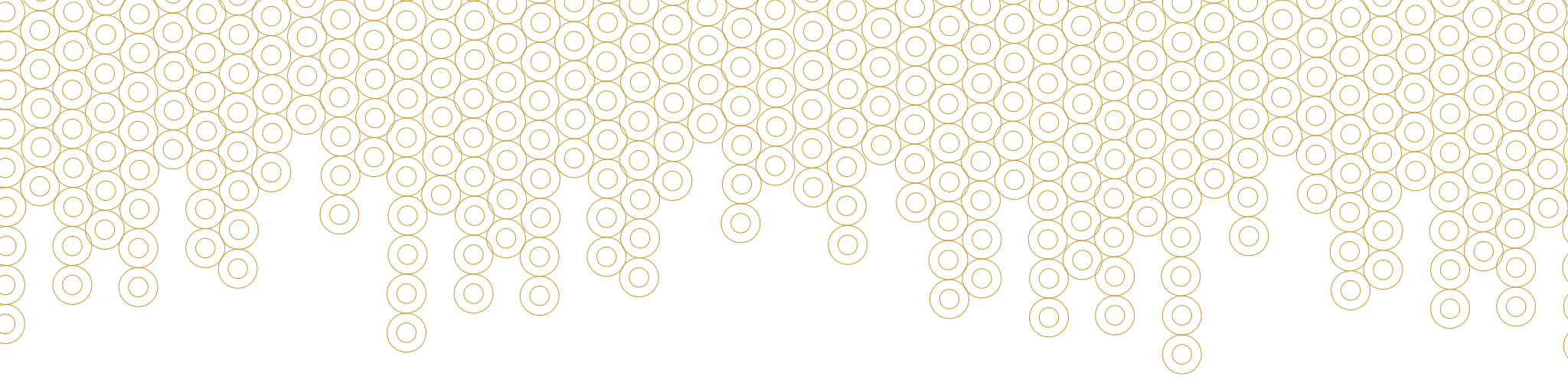
3	Objective:	SWBAT explain the difference between thick and thin questions	Standards: 3.RL.1
	Assessment:	SW give examples of thick and thin questions	
Materials:			
Time	Activity/Methods		Notes
Day 1: 3	CONNECT/ACTIVATE PRIOR KNOWLEDGE: We have been working on the comprehension strategy Asking Questions in order to make us better readers and comprehenders. Today, we are going to work with a new way to think about questions. Our goal today is to be able to explain the difference between something called a thick question and something called a thin question		
15	<p>Listen and TTT (Think then Talk): What is one burning question you would like to ask that you think would help you check to see if you understand what we have read so far in our story? Identify kinds of questions on the board. Create examples of thick and thin questions and share with the class.</p> <p>READ ALOUD/MODEL/DI - Begin Reading Come on Rain. Good readers ask themselves questions while they are reading to help comprehend the story. They do this before, during and after reading. Remember that asking questions helps us check for understanding. It helps us stay motivated while we are reading.</p> <p>Model questioning. DI: Reveal Anchor Chart: There are two types of questions that readers can ask to help check their understanding while they are reading.</p> <p>Thin Questions:</p> <ul style="list-style-type: none"> <li>▪ One answer that can be found in the text</li> <li>▪ Usually ask who, what, where, when</li> </ul> <p>Thick Questions</p> <ul style="list-style-type: none"> <li>▪ Not one correct answer/open ended</li> <li>▪ Ask how, why, what if</li> <li>▪ Help us infer the characters' feelings and motivations</li> <li>▪ Readers must use clues in the book to determine the answer—it will not be stated on the page</li> </ul>		
3	FA: On your notecard: Write one thick question you have for Come On Rain and one Thin Question for Come on Rain. Today, while you are reading, I want you to notice the types of thick and think questions you have before, during and after reading your own books.		

Day 2: 3	CONNECT/ACTIVATE PRIOR KNOWLEDGE. TTT (Think then talk): Why do good readers ask questions	
10	DI/READ ALOUD/MODEL: Remind Students of Anchor chart- and the difference between thick and thin questions. Ask them to turn and talk to their shoulder partner about 1) thick question they have and one thin question they have so far in the story Come On Rain. Read another passage from Come on Rain and ask students for examples- think aloud about whether these questions are thick or thin.	
8	GUIDED PRACTICE: Provide examples of thick and thin questions for student to practice identifying thick and thin.	
5	CD and Independent practice  Recognize that Thick and Thin questions provide us, the reader, with different kinds of information and different kinds of answers. Thin questions typically have one answer. Thick questions could have many different answers- and use clues in order to come to conclusions. While you are you are reading your books today, I want you to record your questions and begin to classify them as thick or thin. Underline Thick questions in Green and Thin Questions in Red.	
Day 3: 3	CONNECT/ACTIVATE PRIOR KNOWLEDGE. We are still working the comprehension strategy: Asking Questions. And, while reading Come On Rain we have been distinguishing between thick and thin questions. Think then Talk: What is the difference between thick and think questions?	
8	DI/MODEL/READ ALOUD Finish reading Come On Rain. Ask students to volunteer thick and thin questions- classifying them as we go. Finish story.	
5	Independent Practice (FA) - Complete Graphic organizer during Read to Self during Daily 5: You will have 5 minutes to get started on completing this graphic organizer distinguishing thick and thin questions. Use this time to ask me questions if you are confused. You may use all of the data and questions you have written and talked about for the last two days to help you complete this graphic organizer. But, remember, this is independent work.	
15	FADE and LINK: Today I would like everyone to Buddy Read to begin Daily 5 today. During Buddy Reading today, work with your partner to come up with 3 thick questions each. Write questions on a post-it note to turn in at the end of the reading block.  Model how students would work together to think of thick questions that would further their understanding.	NOTE: When answering questions (on a test, or from a partner) - if you know it's a thin question, you know that you can go back into your book and find the answer. If you know it's a thick question, you know you have to use your clues to help you infer the answer.



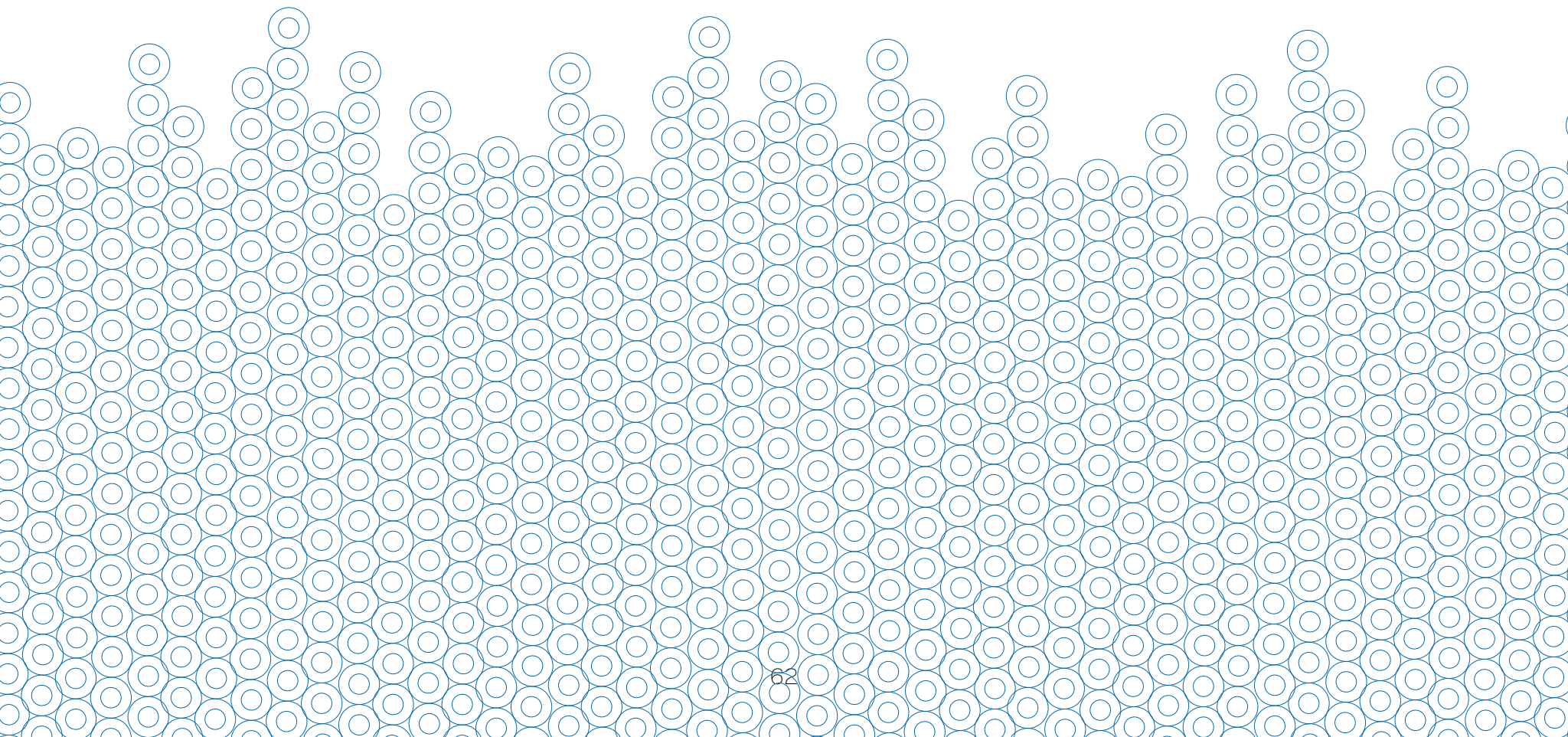
## Summary

While the individual lesson plan is important in helping students think critically and practice skills, lessons work best when they work together to build conceptual knowledge and move students toward self-reliance. To that end, lessons are logically sequenced and cohesively planned within the context of a unit of study, the focus of our next section.

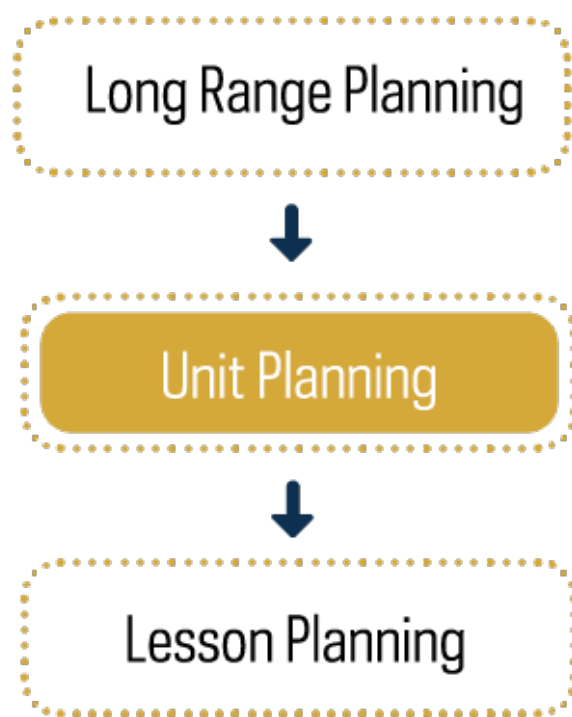


# PART 2

## Unit Planning



# Overview



Constructing individual lesson plans is an essential skill for teachers and the first step in planning a unit, the fundamental block of learning. Units are the most effective and practical way to engage students in significant learning that goes beyond short-term memorization. Units provide the structure for planning experiences and activities that help students make connections among ideas and concepts. Units can be subject area specific or span multiple subjects in what might be referred to as thematic or integrated units. For all types of units, the same principles of building skills and knowledge logically and comprehensively are essential so that units are not simply a scattered collection of lessons.

The organizing principles of an effective unit are a unifying concept yielding an enduring understanding (Wiggins and McTighe, 1998) and a clear unit goal which provides energy to the unit. The unit goal is expressed using an observable and challenging verb which states what all students will know and be able to do at the unit's conclusion. Formative assessment is utilized throughout the unit, and students are able to show achievement of the unit goal through a summative assessment that might be a test, a performance assessment, or both. Units usually are 2-4 weeks in length. ACE has developed a unit planning template that organizes these principles on a cover sheet with links to individual lesson plans.

Just as with lesson planning, a backwards design (Wiggins and McTighe, 1998) for planning a unit is recommended. There are three questions that can guide unit planning:

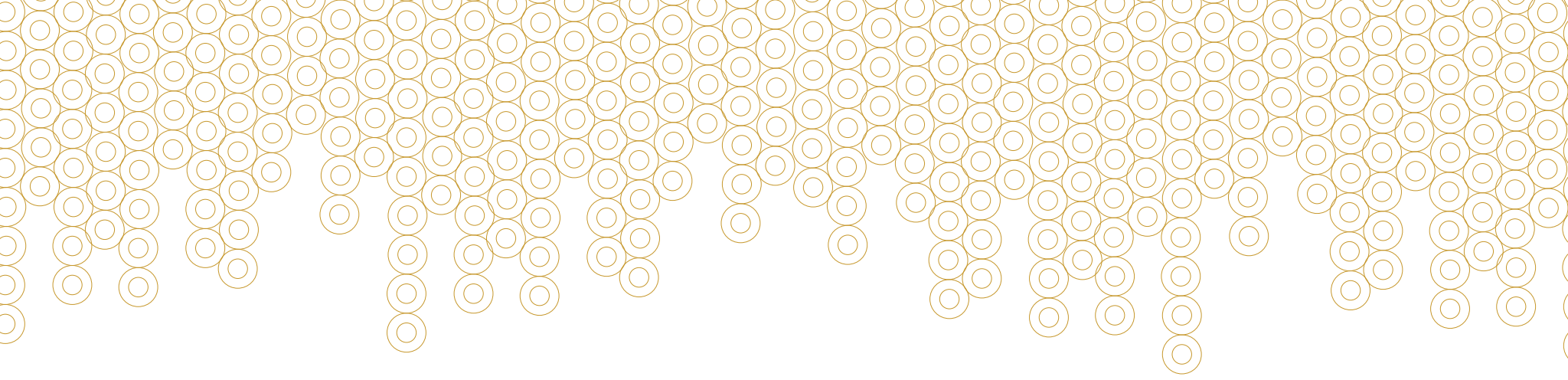
1. What is it that I want students to know and/or be able to do by the end of the unit? Answering this question surfaces the enduring understanding, and from that a unit goal is written.
2. How will I know if students have achieved the unit goal? Answering this question considers the unit's summative assessment.



3. What sequence of lessons can help students build the requisite knowledge and skills needed to achieve the goal? Answering this question shapes the order and choice of lesson objectives and assessments.

This section is divided into three parts. Chapter 4 will consider the elements of the unit framework in the ACE planning model. Chapter 5 will consider steps in planning a unit. Chapter 6 will present sample unit cover pages at the elementary, middle, and high school levels.

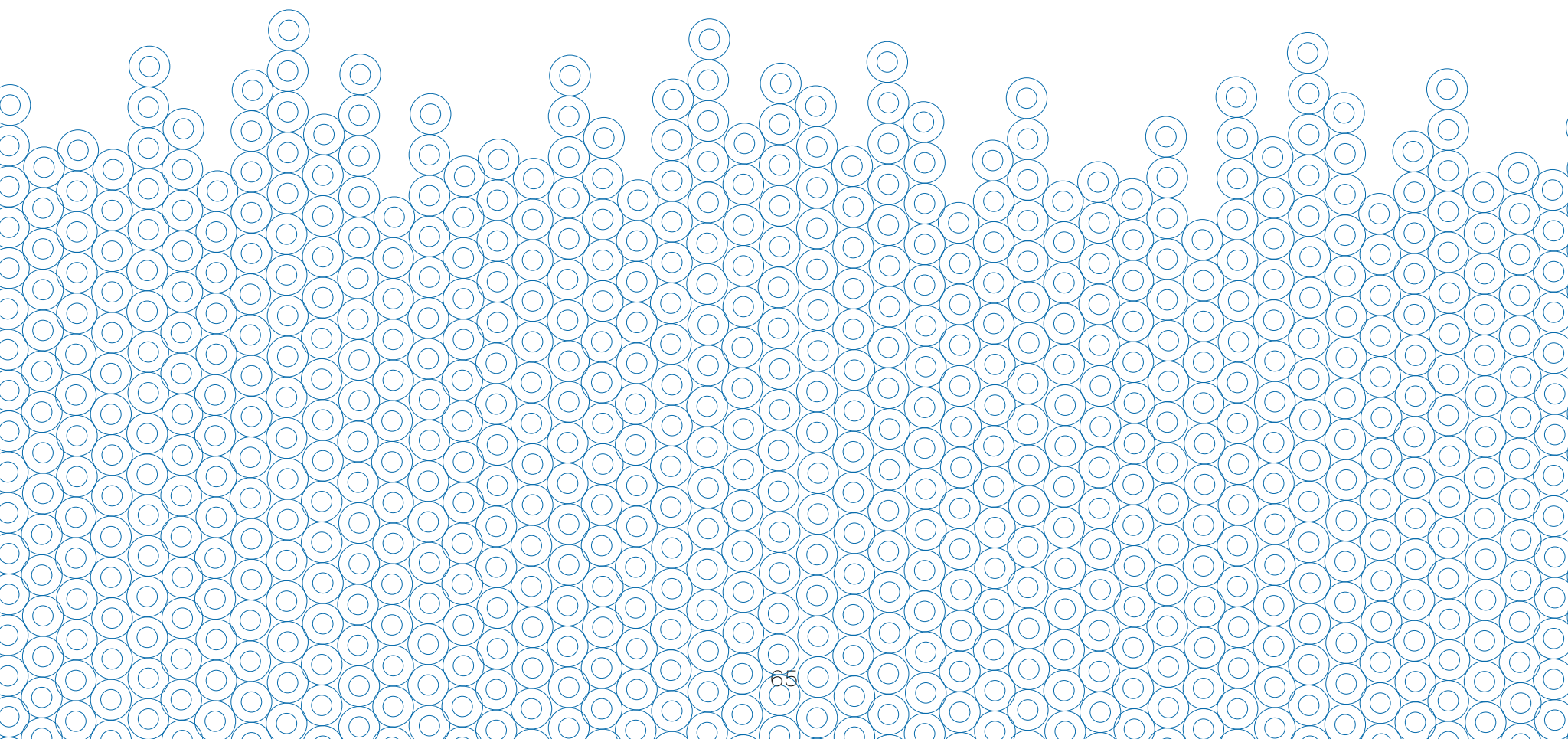
As you read through these next few chapters, think about the unit planning process in relation to what you have learned about lesson planning. How are the processes alike? How are they different? How are they connected?



# Chapter

# 4

## Unit Elements in the ACE Planning Model



# Introduction

A unit consists of a logically sequenced series of lesson objectives and assessments guided by a unit goal and assessed through a performance assessment. Successful completion of the unit enables students to achieve an enduring understanding expressed as a unit concept. The ACE unit planning model gives attention to summative assessment as well as ongoing formative assessment.

A fully developed ACE unit is comprised of the following elements:

1. An Enduring Understanding (Unit Concept) on which the Unit Goal is based
2. The Unit Performance Assessment
3. A sequenced series of lessons that build conceptual knowledge and skills needed to obtain the unit goal/achieve the enduring understanding.

# Enduring Understanding Concepts

## 1. An Enduring Understanding Concept Frames a Unit's Focus.

In their book *Understanding by Design* (1998), Jay McTighe and Grant Wiggins introduce a helpful graphic that distinguishes among three levels of knowledge. They describe knowledge nice to know as knowledge worth being familiar with, knowledge important to know as essential knowledge and skills, and an enduring understanding as a big idea that frames curricular priorities. The concept of knowledge levels anchors ACE unit planning: units focus on enduring understanding concepts while lessons focus on the knowledge important to know that makes up the enduring understanding.

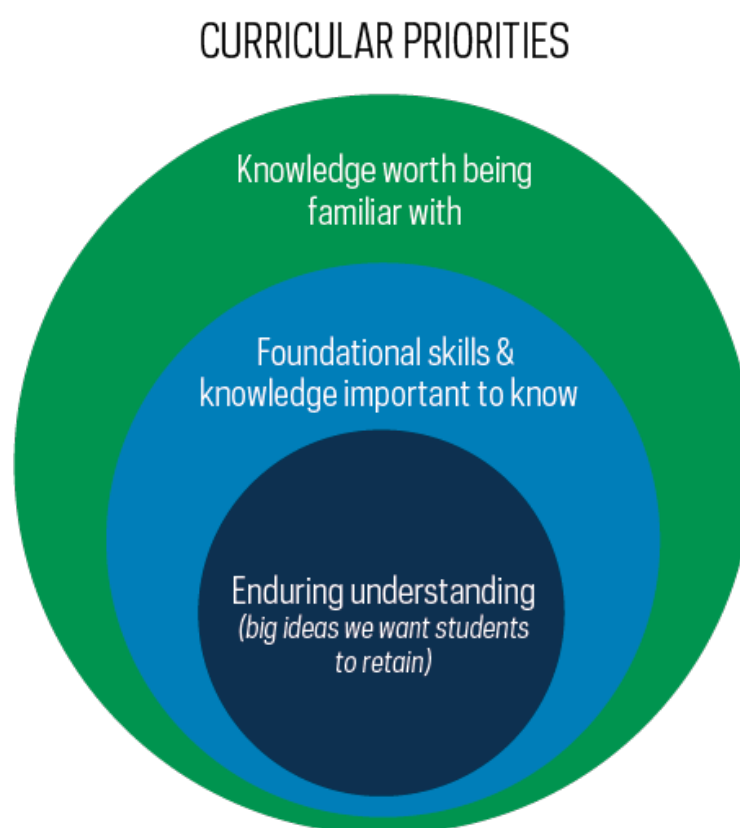


Image based on Curricular Priorities outlined by Wiggins and McTighe (1998)

Enduring understanding concepts are concepts about which a 30-year-old person ought to have strong familiarity (Doyle, 2014). Teachers use knowledge of the discipline and standards (state, diocesan, or Common Core) to identify enduring understanding concepts on which to base units of instruction. Early elementary concepts such as “the paragraph” or “place value” give meaning to the study of essays or math operations in later grades. Without clarity of the concept of a well-constructed declarative sentence, students write incomplete and run-on sentences. Similarly, without clarity of the concept of interdependence, students might not be able to understand the idea of building alliances.

Since unit concepts are enduring understandings, they occur more than once during the K-12 years. Each occurrence builds upon and deepens student engagement with the concept and expects a more demanding level of critical-thinking about the concept. For example in grade 2, students might learn that characters respond to story events. This basic concept gets expanded upon in the middle grades as students consider character development seen through character responses to story events. The continued expansion of the concept occurs in high school with a focus on character complexity as the reason for character evolution.

A unit concept frames the choice of a unit goal that guides the unit. Most units are guided by a singular goal, though in some circumstances, two goals work together to provide the unit's focus. Like lesson objectives, unit goals specify the cognitive level with which students engage the unit concept. A goal begins "SWBAT" followed by a verb and completed with the unit concept's focus.

Teachers are recommended to focus learning on their required standards which not only specify important content and concepts but also the level of engagement with the content and concepts. Take for example, Common Core Standard-RL.4.3:

Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).

This fourth grade standard focuses on story elements and notes a comprehension level verb, describe. When planning a unit, a teacher can draw from the standard's content to name an enduring understanding concept on which to base the unit: story details reveal a character's thoughts, words, or actions. The teacher can then phrase a unit goal. Given that the standard is at the level of comprehension, the teacher would likely choose a unit goal at that level:

SWBAT describe using text evidence a character's thoughts, words, or actions as a story evolves.

It is important to remember that we want to engage students with developmentally appropriate concepts at an appropriate level of critical thinking. Sometimes a single standard might be represented in a unit goal; other times a composite of standards are considered. Sometimes the standard as stated is the unit goal.

Using the unit concept examples from above, unit goals might read as follows (see next page). You'll note that each is referenced to a standard.

Unit Concept	Unit Goal
<b>2nd Grade</b>	
Characters respond to story events	SWBAT describe how characters in a story respond to major events and challenges. (Cognitive Level: comprehension) (CCS-LA-RL.2.3)
<b>Middle School</b>	
Characters' development can be seen in their responses to story events	SWBAT analyze with scaffolding how a particular story's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution. (Cognitive Level: analysis) (CCS-LA-RL.6.3)
<b>High School Sophomore</b>	
Character complexity impacts character development	SWBAT analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme. (Cognitive Level: analysis) (CCS-LA-RL.9.3)

1 – The expression "with scaffolding" suggests aids in the form of organizers and/or questions are provided to students to help them with the process of analysis.

In their discussion of enduring understandings, Wiggins and McTighe also discuss essential questions. About essential questions, Wiggins and McTighe (2013) write:

The best questions point to hard-won big ideas that we want learners to come to understand. The questions thus serve as doorways or lenses through which learners can better see and explore the key concepts, themes, theories, issues, and problems that reside within the content. (p. 5)

Quality essential questions stimulate inquiry, debate, and/or justification; in other words, they demand higher level thinking and engagement in order to grasp a concept or idea. Essential questions are open ended questions that lead to enduring understandings. Here are a few examples across grade levels.

## Sample Essential Questions and Enduring Understandings

Level/Subject Area	Essential Question	Enduring Understanding
High School English	Is humankind inherently good or bad?	Literary characters are motivated by varied and complex factors.
Middle School World History	What makes a civilization?	Civilizations are groups who share culture, government, values and have systems of work.
Elementary Reading	How does questioning help us understand a text?	Questioning (and inferential and factual questions, in particular) is one strategy that allows readers to monitor thinking and understanding of text.
Upper Elementary Social Studies	How does geography affect where people live and what they do?	Physical features of a particular area affect peoples' activities.
Lower Elementary Science	What is a healthy habitat?	All living things have basic needs within their habitats.

When unit planning, some teachers find it helpful to begin by asking an essential question that the unit will aim to unpack in order to lead to an enduring understanding concept. If this choice is made, it is suggested that both the question and the enduring unit concept are named by the teacher to provide clear guidance as the unit focus.

# Unit Assessments

## **2. A unit assessment assesses students' unit concept attainment and unit goal achievement.**

With the concept and goal in place, "backward design" expects the development of a unit assessment that assesses students' unit concept attainment and unit goal achievement.

The unit assessment typically occurs at the unit's end in the form of a performance assessment (PA) in which students demonstrate concept/goal competency in the performance of a holistic task. ACE unit variations might instead consist of a test that includes a performance task component or a set of performance tasks that unfold over the course of the unit. Pertaining to this latter idea, a unit might develop the concept of writing a research paper and within such a unit, various components are assessed as they are introduced, i.e., thesis statement, bibliography, first draft, final copy.

Why a performance assessment? Such an assessment combines content with problem solving skills to execute a task. Engaging with a performance assessment invites application of learning to a previously unseen situation and requires use of deeper level thinking as students justify a particular action (McTighe and Willis, 2019).

The unit performance assessment is aligned to the unit goal and not a specific lesson objective. It is holistic in that it comprehensively addresses the goal through a meaningful and relevant performance task.

Using the character based goals from above, unit assessment samples are included on the next page.

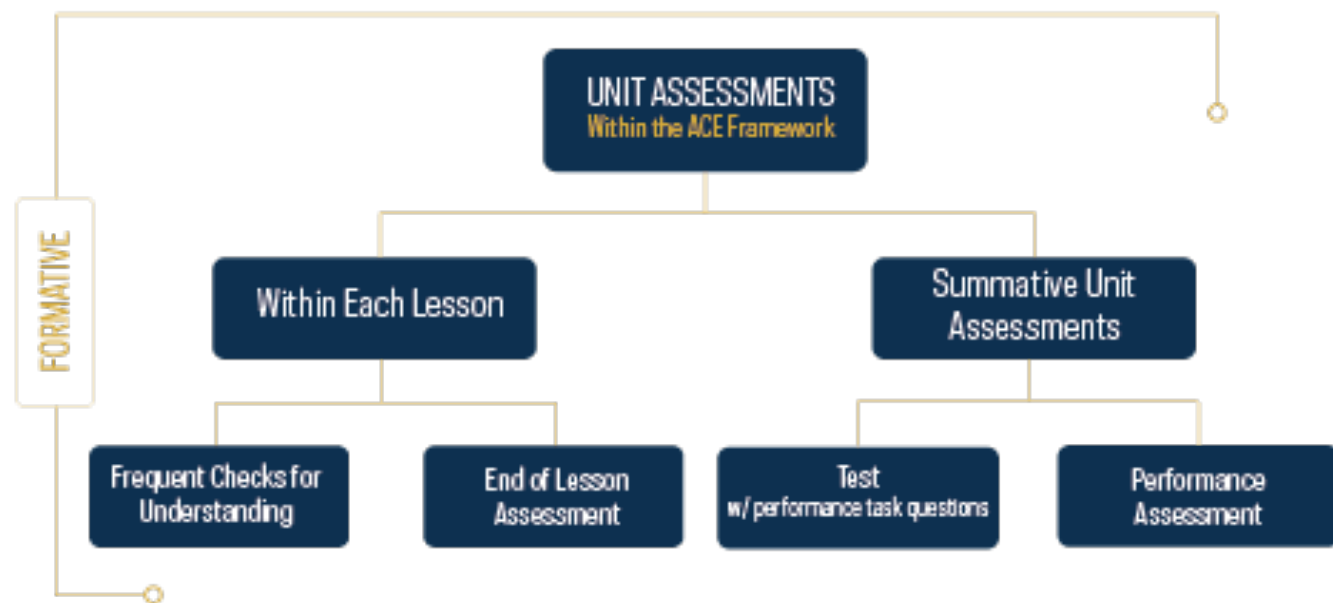
The performance task could also appear as a component of a test. In contrast to the holistic nature of the performance assessment, a test assesses discrete lesson concepts and skills as well as the unit goal at the appropriate critical thinking level on previously unseen material. The test itself should focus on material that is important to the conceptual framework for the unit, not just isolated, memorized facts. While it may contain multiple choice, matching and true/false questions, some open response items should also be included and one of these likely provides the performance task component. Included on the following page are a few examples of such questions.



Unit Concept	Unit Goal	Unit Performance Assessment
<b>2nd Grade</b>		
Characters respond to story events	SWBAT describe how characters in a story respond to major events and challenges. (Cognitive Level: Comprehension) (CCS-LA-RL.2.3)	SW describe character responses in a 3-scene story board they create and present.
<b>Middle School</b>		
Characters' Development can be seen in their responses to story events	SWBAT analyze with scaffolding how a particular story's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution. (Cognitive Level: Analysis) (CCS-LA-RL.6.3)	Given three specific story passages, SW analyze how the character of ... responds or changes in response to things that happen in the story.
<b>High School Sophomores</b>		
Character Complexity impacts Character Development	SWBAT analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme. (Cognitive level: Analysis) (CCS-LA-RL.9.3)	Assuming the role of ___ (a complex character in ___) and choosing three key points in the novel, SW analyze his/her impact on the course of events, influence on other characters, and/or motivations behind key decisions in a diary entry.

Unit Goal	Test Question Performance-based Task
<b>5th Grade Social Studies</b>	
<p>SWBAT explain events in American life that led to the Revolutionary War and the consequences for life in America.</p>	<p>Question requiring short answer responses:</p> <p>Part A. Imagine you are a loyalist and journalist living during the Revolutionary War. In three complete sentences, explain how the Stamp Act and Boston Massacre impacted your life.</p> <p>Part B. Imagine you are a journalist living during the Revolutionary War who is looking to separate from the crown. In three complete sentences, explain how the Stamp Act and Boston Massacre impacted your life.</p>
<b>7th Grade Spanish</b>	
<p>Orally and in writing, SWBAT describe family members and home.</p>	<p>Oral Question: Imagine you are a photographer tasked with labeling a family portrait. Listen to the descriptions provided in the audio and write the family member's name (Mariana, Alberto, Ramón, Tomás, Laura) beneath his/her picture (audio is played; family portrait image included on exam).</p>
<b>10th Grade English</b>	
<p>SWBAT analyze how the protagonist's complex development and motifs build theme related to fate, self-discovery, and love. (10th Grade English)</p>	<p>Questions with responses drawn and written in an organizer:</p> <p>Assuming the role of Santiago (from <u>the Alchemist</u>), draw your personal legend at the following three points in your story (organizer included). Feel free to add words, symbols, or drawings to your visual representation to make it clear. Then, explain your visuals.</p> <ol style="list-style-type: none"> <li>1. After your conversation with the old woman who interprets your recurrent dream:</li> <li>2. After you meet Fatima:</li> <li>3. At the very end of the book:</li> </ol>

In addition to the unit assessment aligned to the unit goal, the unit contains many additional and varied formative assessments. As previously noted, each lesson includes many checks for understanding which provide information for a teacher’s instructional decisions and opportunities for ongoing feedback to students. Additionally, an end of lesson summative assessment determines student mastery in achieving the lesson objective while further informing a teacher’s instructional decision making. Throughout a unit, it is important that ample opportunities for students to reveal their achievement are provided (McTighe and Willis, 2019).



While the test and performance assessment are classified as summative unit assessments in the ACE framework, it is important to note that all assessment should be formative and used to inform future instruction.

## Unit Structure - Lesson Sequence

### **3. Lessons are sequenced to build conceptual knowledge and skills in a logical way.**

"Learning is a process of constructing meaning," Marzano wrote in his timeless book, *A different kind of classroom: Teaching with dimensions of learning* (1992). In a unit of instruction, students construct meaning through lessons that work together to help them develop understanding which is eventually demonstrated through transfer of their knowledge and skill in new situations (McTighe and Willis, 2019). The first few lesson plans of the unit then focus on the acquisition of knowledge necessary to meet the unit goal which includes facts and basic concepts (declarative knowledge) and skills (procedural knowledge). As students deepen their understanding of key concepts or skills, lessons build towards the meaningful application of knowledge and skills.

Initiating the unit with a 'shared experience' that has students come together around a problem, idea, or phenomena is a great way to begin the unit. Beginning a unit in this way not only invites interest and engagement from students, but it can also succeed in establishing an instructional context that helps students better understand how the goal will be operationalized during the course of the unit. A quality class discussion attached to something important to students can hook their interest. Demonstrations, use of texts, video clips, inquiry or problem solving tasks, etc. can be used to capture interest and rationalize the unit.

The subsequent early unit lessons begin by activating prior knowledge and then using diverse activities/methods to get students interacting in a variety of learning structures around the central concept of the lesson and always with attention to the overarching goal of the unit.

While there is no optimal number of lesson plans to acquire knowledge and skill and build conceptual understanding in relation to the goal, it is recommended that planners remain mindful of a unit that is 2-4 weeks in length.

# Unit Template

The [ACE graphic organizer](#) that summarizes the unit planning process is called the Unit Cover Page. The top portion provides space for noting the unit concept/enduring understanding and essential question (if utilized), unit goal, and unit assessment. Additionally it has space for noting the unit rationale. The Unit Rationale articulates the reason the concept is one of the key enduring understandings for the subject/course and why the unit concept occurs at a particular point in the sequence of concepts. A more thorough presentation of the unit rationale will occur in Chapter 7, Long Range Planning.

Unit #	Unit Concept/Enduring Understanding	Estimated Duration
Unit Rationale		
Unit Goal		
Unit Assessment		

The bottom portion of the organizer provides space for stating the sequence of lesson objectives and lesson assessments, the Standard(s) to which they connect, and number of days each lesson requires.

Lesson #	Estimated # of days	Lesson Objective Lesson Assessment	(Benchmarks, Standards, or Mastery Codes)
LP1		Objective: Assessment:	
LP2		Objective: Assessment:	
LP3		Objective: Assessment:	
LP4		Objective: Assessment:	
LP5		Objective: Assessment:	
LP6		Objective: Assessment:	
LP7		Objective: Assessment:	

The next chapter will introduce the planning process and how this unit cover page is utilized.

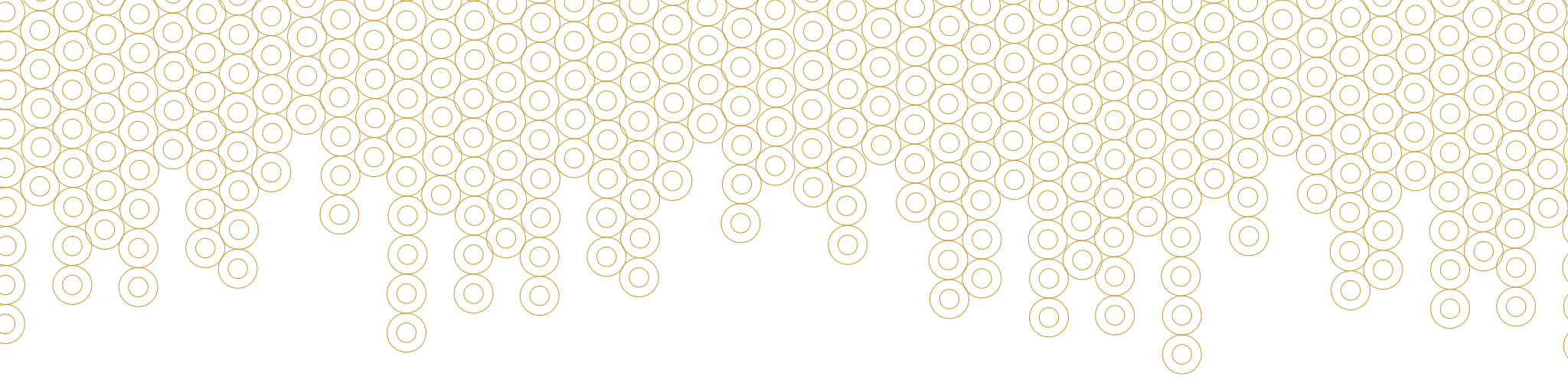
# Summary

A unit consists of a logically sequenced series of lesson objectives and assessments that enable students to construct the Unit Concept and achieve the Unit Goal. Initial lesson plans lead students from their prior knowledge to a straightforward construction of the unit concept and expect them to think critically about it at the unit goal level. Later lesson plans challenge all students to build on the unit concept to ensure enduring understanding. The Unit Assessment assesses holistically the degree of student success in constructing the unit concept.

## Questions

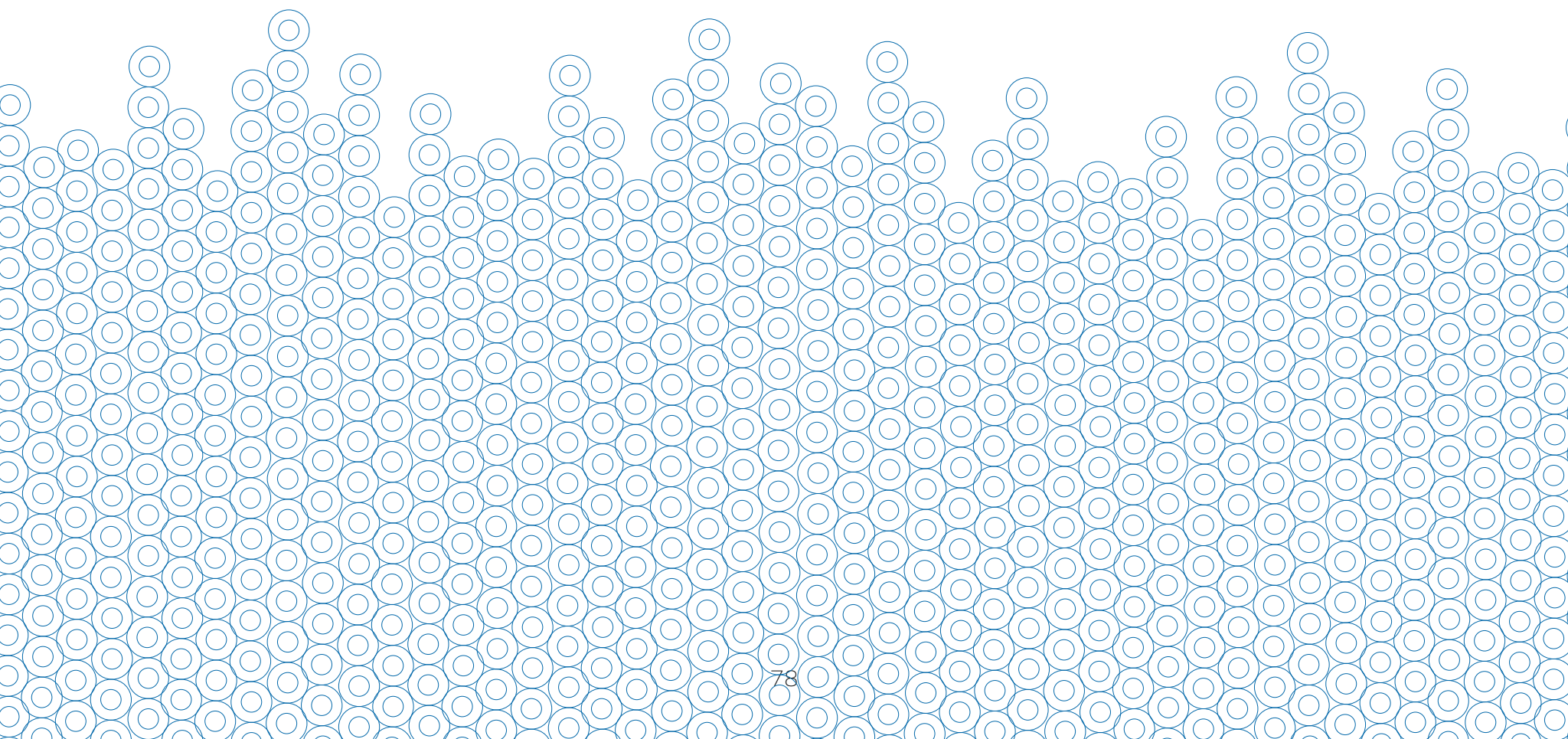
Recall the lesson planning process described in earlier chapters.

1. How is unit planning, explained in this chapter, similar to lesson planning?
2. How is unit planning different from lesson planning?
3. How are the two processes connected?

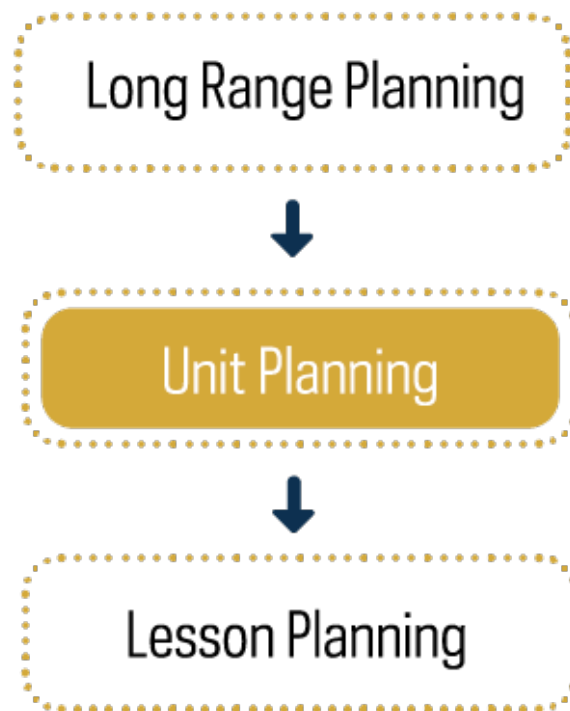


# Chapter 5

## Planning a Unit



# Introduction



The last chapter introduced elements of a unit plan and the order in which we approach them when constructing a unit:

- 1) We begin by surfacing an enduring understanding/unit concept and from that writing a unit goal.
- 2) We next choose a unit summative assessment that aligns with the goal at the same critical thinking level.
- 3) We then shape the unit's lesson sequence in a logical way in order to help students build the requisite knowledge and skills needed to achieve the goal.

This chapter focuses on how we create each of these elements and in so doing, create a unit. For the novice, planning a unit can seem daunting. However, as with all procedural knowledge, the more it is practiced, the more the process eventually becomes internalized. The process will not only become easier but the quality of units prepared will likely become stronger.

- 1) Surfacing an **enduring understanding/unit concept** and from that writing a unit goal

Enduring understandings/unit concepts are gleaned from standards. It is important to note that not all standards are created equally. Some standards require a whole unit to meet it; others require just a single lesson. Sometimes a single



standard might be represented in a unit goal; other times a composite of standards are considered. Sometimes the standard as stated is the unit goal.

2) Choosing a **unit summative assessment** that aligns with the goal at the same critical thinking level

A unit assessment is a statement that begins, SW, and specifies how the goal will be assessed. However, in the full scheme of planning, a teacher needs to prepare the assessment as it will be presented to the students. Considerations for such preparation are included toward the end of the chapter.

3) Shaping the unit's **lesson sequence** in a logical way in order to help students build the requisite knowledge and skills needed to achieve the goal.

With an enduring understanding and possibly an essential question phrased, a unit goal and unit assessment chosen, a teacher begins the process of determining the requisite knowledge and skills needed for students to achieve the unit goal. In order to do this, a teacher lists words and phrases that state necessary content. Standards and textbooks can be helpful resources.

## Planning a Unit - Example

As an example, we'll use fourth grade diocesan standards related to the moral life and growing in understanding of the Beatitudes.

**C.2.4.1 Students will know the Beatitudes and how they are a model for how we live.**

**C.2.4.2 Students will know that the Beatitudes show us the path to happiness and heaven.**

From these standards, a teacher named an enduring understanding and phrased an essential question:

**The Beatitudes are a guide for how to live.**

**How might we model the Beatitudes in our everyday lives?**

From the enduring understanding, the teacher next phrased a unit goal:

**SWBAT explain how their personal behaviors and behaviors of those around them demonstrate living out the Beatitudes.**

From that goal, a unit assessment was decided:

**SW explain recorded behaviors that demonstrate Beatitudes in three journal entries.**

From here, a teacher would review the textbook and other resources and begin to consider words, phrases, vocabulary, skills, and concepts that are important. While it is noted linearly in this text, many teachers prefer to use scratch paper to complete this phase in order to create more of a concept map connecting ideas using circles and lines, boxes and arrows.

**Table 1a - List of important unit content and skills**

Unit Concept:	The Beatitudes are a guide for how to live
Unit Goal:	SWBAT explain how their personal behaviors and behaviors of those around them demonstrate living out the Beatitudes.
Unit Assessment PA:	SWBAT explain recorded behaviors that demonstrate Beatitudes in three journal entries.

<h3 style="margin: 0;">Important Unit Content</h3> <p>Beatitudes - blessings</p> <p>What they are</p> <p>Why they are important</p> <p>What they mean</p> <p>Sermon on the Mount</p> <p>Matthew 5: 3-10</p> <p>Vocabulary: Beatitude, paradox, "poor in spirit," meek, "humble of heart,"</p> <p>From Catechism: "vocation of the faithful" "actions and attitudes characteristic of the Christian life"</p> <p>Persons who lived the Beatitudes well - Mary, saints</p> <p>Persons who live the Beatitudes well TODAY</p> <p>Relationship to Ten Commandments</p>
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Once stated, a teacher considers which content goes together to form a lesson focus. Each lesson centers on a lesson concept that might be represented by something within the stated content or might be built from the various elements. Note in the example below that certain ideas seem to go well together.

**Table 1b - Beginning of organization of important unit content and skills**

Unit Concept:	The Beatitudes are a guide for how to live
Unit Goal:	SWBAT explain how their personal behaviors and behaviors of those around them demonstrate living out the Beatitudes.
Unit Assessment PA:	SWBAT explain recorded behaviors that demonstrate Beatitudes in three journal entries.

Important Unit Content (Beginning of Organization)			
Beatitudes - blessings -What they are -Where they come from - Sermon on the Mount-Matthew 5: 3-10 -Why they are important	What they mean -From Catechism: "vocation of the faithful" "actions and attitudes characteristic of the Christian life" -paradox, "poor in spirit," meek, "humble of heart"	-Persons who lived the Beatitudes well - Mary, saints -Persons who live the Beatitudes well TODAY	-Relationship to Ten Commandments
Possible Lesson Concept: Beatitudes are blessings given to us by Jesus	Possible Lesson Concept: Eight Beatitudes show us how to live	Possible Lesson Concept: There are past and present models of living the Beatitudes well	Possible Lesson Concept: Beatitudes relate to the Ten Commandments

The teacher now thinks about how to best order these focused lesson concepts into a logical sequence that will help students begin to build the enduring understanding. Through thoughtful organization, the lesson concepts become organized and interconnected as ideas move from early thinking to more refined thinking.

Table 1c - Organization of potential lesson concepts into a logical unit sequence

Unit Concept:	The Beatitudes are a guide for how to live
Unit Goal:	SWBAT explain how their personal behaviors and behaviors of those around them demonstrate living out the Beatitudes.
Unit Assessment PA:	SWBAT explain recorded behaviors that demonstrate Beatitudes in three journal entries.

<h3>A logical sequence of lesson concepts</h3>	
<p><b>Early thinking</b></p> <p>LP1 Beatitudes are blessings.</p> <p>LP2 meaning behind each Beatitude; how to live each out</p> <p>LP3 past and present examples of Beatitude well lived</p> <p>LP4 the Beatitudes share similarities with the Ten Commandments; also differences</p>	
<p><b>Refined thinking</b></p> <p>LP1 Beatitudes are blessings given to us by Jesus.</p> <p>LP2 meaning behind each Beatitude; how to live each out</p> <p>LP3 past examples of Beatitude well lived</p> <p>Test</p> <p>LP4 the Beatitudes share similarities with the Ten Commandments; also differences</p> <p>LP5 present-day examples of Beatitude well lived</p> <p>PA</p>	

LP1 would start by activating students' prior knowledge and building the necessary background knowledge to begin to help students understand the "who, what, where, when, and why of the Beatitudes." A teacher might choose to use a 5-W organizer to begin the unpacking. This introductory lesson might be a 2-day lesson. In planning the first LP, a teacher should remember that contextualizing the big idea or enduring understanding is a helpful practice.

LP2 would move students to more specific information about each Beatitude and how to live it out. Sufficient time would be devoted to unpacking important vocabulary (e.g. paradox), and to help students construct meaning. This lesson might require 3-days to provide ample time for such exploration.

LP3 would invite some storytelling to help students better understand how the Beatitudes can be lived well. In the exploration of a single individual, students would have opportunity to revisit all of the Beatitudes. This might be a single-day lesson.

In this unit, the choice is made to include both a test and a performance assessment. The test follows the third lesson as students likely have built sufficient knowledge related to the unit goal. After the test, a lesson in which students compare the Beatitudes to the Ten Commandments (prior knowledge) can help them refine their knowledge of the Beatitudes. The skill of comparison (procedural knowledge) invites higher level engagement with the evolving concept of the Beatitudes as a guide for how to live. This might be a single-day lesson.

The next lesson harkens back to the pre-test lesson about models of living the Beatitudes well but this time invites a look at current-day models. This lesson might invite students to apply what they have learned about the Beatitudes to a person they think is a model of how to live them. Procedural skills for writing might be revisited in this lesson and thus a 2-day lesson might be needed.

The unit ends with the performance assessment which holistically assesses the unit goal as students prepare three journal entries in which they explain how they are living the Beatitudes.

In this sample presented, extended-day LPs help students “chunk” daily ideas into a lesson’s concept and systematically link lesson concepts into the unit concept.

The next step is stating lesson objectives. The verb reveals the level of critical thinking through which the teacher wants to engage the students. In some ways, this is the easiest step of the planning process because each lesson already has a defined lesson concept and from it the objective is stated. Sequencing the objectives effectively and identifying their focus appropriately are a significant step in helping students achieve an enduring understanding.

**Table 1d - A logical sequence of lesson objectives**

<b>Unit Concept:</b>	The Beatitudes are a guide for how to live
<b>Unit Goal:</b>	SWBAT explain how their personal behaviors and behaviors of those around them demonstrate living out the Beatitudes.
<b>Unit Assessment PA:</b>	SWBAT explain recorded behaviors that demonstrate Beatitudes in three journal entries.

<p><b>A logical sequence of lesson objectives</b></p> <p>LP1 SWBAT recount how Jesus gave us the Beatitudes.</p> <p>LP2 SWBAT illustrate the meaning behind each of the Beatitudes and how to live it out.</p> <p>LP3 SWBAT explain why Blessed Pier Giorgio Frassati is called the "Man of the Beatitudes."</p> <p>Test</p> <p>LP4 SWBAT compare the moral tools of the Beatitudes and the Commandments.</p> <p>LP5 SWBAT describe a modern day "person of the Beatitudes."</p> <p>PA</p>
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The example we have used emphasizes:

- Listing unit content (vocabulary, concepts, skills, phrases, etc.);
- Making connections between content elements that seemingly go together;
- Forming lesson concepts using the connections made;
- Organizing concepts into a logical sequence that builds conceptual knowledge leading to a test then following with concepts that seemingly would work to help students extend, refine, or use knowledge to build a stronger and more sophisticated understanding of the overarching unit concept;
- Writing objectives using the organized lesson concepts.

With experience these steps can be simplified to: listing unit components (1), organizing components (2), writing lesson objectives (3).

**Table 1e - Three Phases to Lesson Sequencing**

<b>Unit Concept:</b>	The Beatitudes are a guide for how to live
<b>Unit Goal:</b>	SWBAT explain how their personal behaviors and behaviors of those around them demonstrate living out the Beatitudes.
<b>Unit Assessment PA:</b>	SWBAT explain recorded behaviors that demonstrate Beatitudes in three journal entries.

<b>Unit Components</b>	<b>Organized Unit Components</b>	<b>A logical sequence of lesson objectives</b>
Beatitudes – blessings What they are Why they are important What they mean Sermon on the Mount Matthew 5: 3-10 Vocabulary: Beatitude, paradox, “poor in spirit,” meek, “humble of heart,” From Catechism: “vocation of the faithful” “actions and attitudes characteristic of the Christian life” Persons who lived the Beatitudes well: Mary, saints Persons who live the Beatitudes well TODAY Relationship to Ten Commandments	become Beatitudes are blessings given to us by Jesus Meaning behind each Beatitude; how to live each out Past examples of Beatitude well lived The Beatitudes share similarities with the Ten Commandments (and some differences) Present-day Examples of Beatitudes well lived	become A logical sequence of lesson objectives LP1 - SWBAT recount how Jesus gave us the Beatitudes. LP2 - SWBAT illustrate the meaning behind each of the Beatitudes and how to live it out. LP3 - SWBAT explain why Blessed Pier Giorgio Frassati is called the “Man of the Beatitudes.” TEST LP4 - SWBAT compare the moral tools of the Beatitudes and the 10 Commandments. LP5 - SWBAT describe a modern day “person of the Beatitudes.” PA



Here is a second example. Note the progression from unit components to organized unit components to statement of organized lesson objectives in this second grade science unit. Also, please note that this unit includes just one major assessment.

**Table 1f – Unit Planning Example - Second Grade Science Unit**

<b>Unit Concept:</b>	Parents and their Offspring
<b>Unit Goal:</b>	SWBAT construct an evidence-based account of parent-offspring similarities and behavioral patterns.
<b>Unit Assessment PA:</b>	Given four images (eagle, duck, eaglet, duckling), students will correctly pair parent with offspring and provide an evidence-based explanation for their choices.

<b>Unit Components</b>	<b>Organized Unit Components</b>	<b>A logical sequence of lesson objectives</b>
Plant traits Animal traits Offspring behaviors and survival Skills: observation, using evidence, comparing Vocabulary: offspring, trait	Observations of Plant and Animal Parent-Offspring Traits Evidence-based account of Parent-Offspring Similarities Evidence-based Account of Parent-Offspring Differences Research of Plant and Animal Parent-Offspring Behaviors Offspring Survival	LP1 - SWBAT describe from observations plant and animal traits for parents and offspring. LP2 - SWBAT construct from observational evidence an account of the similarities between parents and offspring of plants and animals. LP3 - SWBAT construct from observational evidence an account of the differences between parents and offspring of plants and animals. LP4 - SWBAT read texts and use media to describe behavioral patterns of plant and animal parents and offspring. LP5 - SWBAT explain the connection between particular behavioral patterns and their effects on the survival of the offspring. PA

## When Units are Planned Ineffectively

Ineffective planning will likely lead to less effective teaching. Ineffective planning can occur in many ways:

- Choosing a unit concept that is not an enduring understanding. When this happens, an entire unit can focus on “knowledge nice to know” but not necessarily “knowledge important to know.”
- Choosing to focus a unit goal at an inappropriate level of critical thinking. If the cognitive level of engagement is too low, the standard(s) might not be met and/or students might be less engaged and/or the unit remains at a surface level of learning.
- Choosing a unit assessment that doesn't align with the goal and assess it holistically. This common occurrence has a teacher choosing a creative assessment but unfortunately it doesn't show attainment of the goal.
- Listing lesson objectives without consideration of how they work together to logically build conceptual knowledge and skills. When this occurs, an enduring understanding is less likely to endure.

Consider an example of an ineffective unit cover page. As you read this example, ask yourself why it is likely to be ineffective if taught as planned.

### Ineffective Planning:

#### 7th Grade Social Studies

Unit Concept:	Life on the Great Plains
Unit Goal:	SWBAT <u>analyze</u> <b>how the settlement</b> of the Great Plains <b>affected the lives</b> of the settlers, Native Americans and sodbusters.
LP1:	SWBAT <u>analyze</u> the importance of the <b>transcontinental railroad and Morse code</b> in connecting the two separate halves of the U.S.
LP2:	SWBAT <u>describe</u> the purpose of and employ <b>time zones</b> .
LP3:	SWBAT <u>describe</u> life on the Great Plains for sodbusters.
LP4:	SWBAT <u>explain</u> how the <b>technological developments</b> of the railroad and barbed wire impacted the <b>rise and fall of cattle drives</b> .
LP5:	SWBAT <u>evaluate</u> American-Native American interactions on the Great Plains.
LP6:	SWBAT <u>describe</u> life on the Great Plains for settlers.
Test	

The unit concept and goal are appropriately strong for a 7th grade unit, and the unit’s purpose that students should be able to describe “life on the great plains” and to analyze “how settlement affected lives” is reasonable. Yet students are likely bewildered by how the ideas highlighted in bold can help them achieve the purpose. The curious sequence of content and lack of important lesson concepts surely does not prepare students in relation to the enduring understanding, while the lack of evaluative criteria in LP5 likely encourages nothing more than uninformed opinions.

Now consider this updated unit. How is it improved?

## Improved Unit Construction

### 7th Grade Social Studies

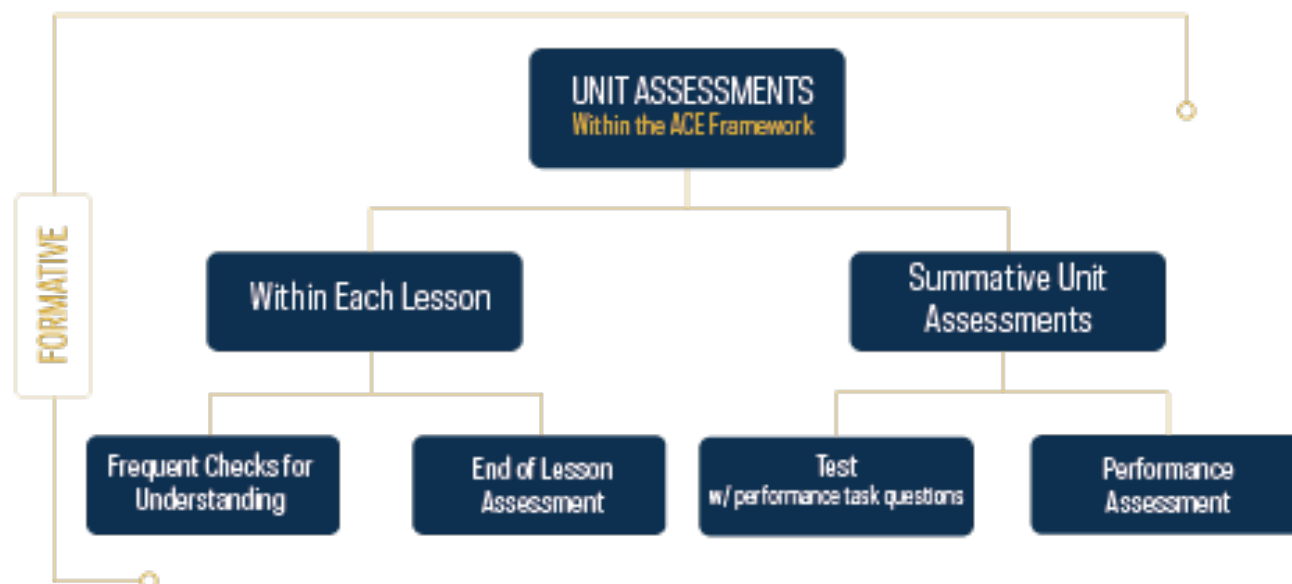
Unit Concept:	Life on the Great Plains
Unit Goal:	SWBAT <u>analyze</u> <b>how the settlement</b> of the Great Plains <b>affected the lives</b> of the settlers, Native Americans and sodbusters.
LP1:	SWBAT <b>describe life</b> on the Great Plains for settlers and sodbusters.
LP2:	SWBAT explain how building the transcontinental railroad <b>affected the lives of settlers and sodbusters.</b>
LP3:	SWBAT compare and contrast <b>life for Native Americans before and after settlement of the Great Plains.</b>
LP4:	SWBAT analyze <b>how settlement of the Great Plains affected the life</b> of a young pioneer boy (case study).
LP5:	SWBAT use technological developments of the railroad and barbed wire to explain the rise and fall of cattle drives and <b>their effect on the people living in the Great Plains.</b>
LP6:	SWBAT analyze the <b>historical accuracy of a clip from Little House on the Prairie.</b>
Performance Assessment:	After reading several historical journal entries from individuals during the Civil War era, SWBAT analyze <b>how the settlement of the Great Plains played a role in the characteristics of the individuals’ “current” lives</b> within a graphic organizer.

Implicit in the revised unit cover page is the possibility of incorporating non-history standards into the unit. In lesson three, for example, pairs can research the number and geographic distribution of Native Americans and Americans from the 1830s through 1870s and construct tables and graphs (a math standard) as part of the class’s larger comparison/contrast. Lesson four likely incorporates readings from a diary (nonfiction Language Arts standard) to explore the young pioneer boy’s life, while lesson six lends itself to perhaps two Language Arts standards – one concerning the typical literature standard of analyzing character development and the other addressing historical influences on a story line.

Units often lend themselves to the inclusion of other subject area standards that strengthen, without distracting from, the subject-specific focus of the unit. For example, science units readily integrate math and engineering and/or literacy standards. Social Studies, Religion, and English all are sympathetic to one another and reliant on the skills learned in each subject area to help understand these subjects. Primary grade thematic units readily include standards from multiple subject areas. Effective teachers are alert to opportunities for integrating well-chosen standards, while resisting introducing standards that do not contribute comfortably to the unit concept and goal.

# Assessments in the ACE Planning Model

## A closer look at Assessments in the ACE Planning Model



Throughout this chapter references have been made to end of lesson assessments, tests, and unit assessments/performance assessments. This diagram from Chapter 4 emphasizes that these three types of assessments are formative (used to inform instructional decisions). Summative assessments are also evaluative (graded). While the emphasis in unit planning is to include these, this section looks more closely at their construction. Before doing so, some clarification of two grading approaches is needed as they have bearing on how grades are obtained, recorded, and reported.

### Traditional Grading and Standards Based Grading

Quality assessments are aligned to standards-based learning outcomes as stated in lesson objectives and unit goals. Grading practices of these assessments can vary depending upon district, diocese, or school requirements. Traditional grading practices generally report a single grade per assessment while a standards based approach measures students' proficiency per learning target. Traditional grades are often recorded as a percent or singular letter grade, while a standards based approach records a proficiency rating based upon specified criteria. Traditional grades are typically gathered via quizzes, tests, and performance assessments, as well as effort-based assessments such as homework and class work. Grades are averaged in some weighted way into a single mark on a grade report. Standards based grading reflects achievement in relation to the specified standards typically assessed through tests, quizzes, and performance assessments. Proficiency ratings for standards are noted on a grade report. The chart on the next page summarizes the differences between the two approaches.

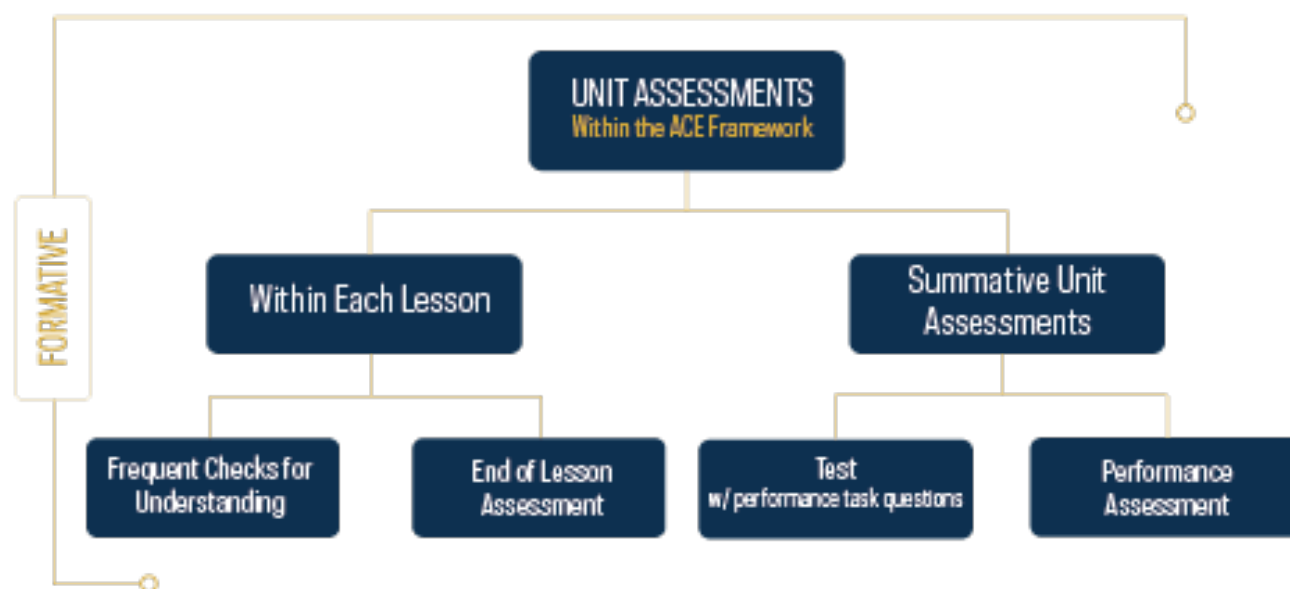
While many schools continue to use a traditional grading approach, a growing number of schools are moving to standards based grading or some hybrid of traditional and standards-based grading. This guide is not promoting one approach over another. Instead, it offers the reminder that a teacher's grading practices must align to its school's expectations.

As we now move to the construction of assessments, keep in mind the two grading practices and consider how grading these assessments would differ.

Traditional Grading	Standards-Based Grading
<b>What is assessed?</b>	
<ul style="list-style-type: none"> <li>- Achievement - ex. quizzes, tests, performance assessments</li> <li>&amp; possibly</li> <li>- Effort-based work: ex. homework and classwork</li> </ul>	<ul style="list-style-type: none"> <li>- Achievement - ex. quizzes, tests, performance assessments</li> </ul>
<b>How are assessments graded?</b>	
<ul style="list-style-type: none"> <li>- Usually one grade per assessment</li> <li>- May include penalties for late work or extra credit points</li> <li>- Retakes might occur</li> </ul>	<ul style="list-style-type: none"> <li>- A rating for each learning target based upon established criteria (e.g. insufficient, developing, proficient, advanced)</li> <li>- No penalties &amp; no extra credit</li> <li>- Retakes possible</li> </ul>
<b>How are grades reported?</b>	
<ul style="list-style-type: none"> <li>- As a single rating (letter grade or percent)</li> <li>- Typically, a weighted average of achievement and effort-based grades gathered throughout the marking period</li> </ul>	<ul style="list-style-type: none"> <li>- A proficiency rating for each learning target</li> <li>- Reflects the most recent evidence of learning</li> </ul>

# End of Lesson Summative Assessments

## A closer look at Assessments in the ACE Planning Model



## End of Lesson Summative Assessments within a Unit

End of lesson summative assessments are important to:

1. identify for the student progress in learning
2. clarify for the teacher student progress toward unit concept attainment and unit goal achievement, and
3. suggest to the student and to the teacher helpful changes.

Thoughtful end of lesson summative assessments along with frequent checks for understanding clarify student progress – or lack of progress –toward unit concept attainment and unit goal achievement. Such information is valuable to both students and teachers. If seeing poor assessment results, students might choose to ask more questions during a lesson, seek additional help or change study habits, while teachers might choose to adjust lessons, vary instructional methods and use additional checks for understanding.

End of lesson assessments can take varied forms and may be graded or ungraded. Graded assessments might take the form of a quiz, writing response, or series of math problems. Ungraded assessments might include exit tickets, a series of oral responses in a new language under study, or use of a comprehension strategy (e.g. making connections, inferring, or questioning assessed through conversation noting when and if students are able to perform the task appropriately). Though formats can vary, common to all end of lesson assessments is the alignment to the lesson objective it is assessing.

When grading end of lesson assessments, many teachers will score them in a standard way – e.g. all lesson quizzes, organizers, or short writing assignments are ten point assessments. Teachers using a standards based approach would more likely note a level of proficiency – e.g. insufficient, developing, proficient – as a base rating. For more involved assessments and varied types of writing, it is recommended that a rubric be used to ensure greater objectivity when grading.



# Test Design

When designing a test, a teacher should not include everything spoken during each lesson, or reward speed, memory, and reading ability. Such tests tend to focus on knowledge level learning and do little to determine students' enduring understanding.

On the contrary, a well-constructed test should determine students' unit concept attainment and unit goal achievement at the stated level of critical thinking using previously unseen material. When well designed, a test effectively assesses conceptual connections and "Knowledge Important to Know" in relation to the standards the unit is designed to address.

Tests can vary in number of questions asked and total points earned. A teacher needs to consider age of students and time allotted for completion. Too many questions could require students to race through test taking. Too few questions might not provide sufficient opportunity for students to show what they know.

Additionally, tests can vary in question type. Selection formats include multiple choice, true/false, and matching; open-response formats include fill-ins, short answer, and essays. There are benefits and limitations associated with all question types so a teacher needs to consider carefully how best to construct a test to assess within the given content area.

A rigorous and well-designed test will challenge all students and likely will lead to a diverse grade range (or varied mastery levels in the case of standards based grading). Without specifying question types or number of questions, a teacher might consider the following breakdown of questions in designing a test:

## **45% of total test points**

Questions about lesson concepts and skills

## **15% of total test points**

Questions that might connect to past unit concepts or skills (literacy skills, map skills are examples that can be relevant to address on tests)

## **20% of total test points**

Straightforward questions that assess students' attainment of the unit goal

## **20% of total test points**

Progressively more challenging questions that assess students' attainment of the unit goal on previously unseen material in performance task questions.

Previously unseen material works well within a performance task question. However, the idea of previously unseen material can cause confusion and stress and may not be clearly understood by parents who challenge, “that question was not on the study guide.” It is important to teach students and parents that previously unseen material does not mean previously unlearned concepts/skills. All students should come to expect to apply learning from the unit to a previously unseen word problem, or interpret a previously unseen graph, or analyze a passage in a text previously not discussed. The more students have experience with such practices during lessons, the more comfortable they will be in answering similar questions on assessments.

In a misguided effort to “help” struggling students, teachers sometime:

- Include too few critical thinking questions at Unit Goal level
- Include “extra credit” questions if using a traditional grading system

Such practices might allow students to pass without demonstrating unit concept/goal achievement, creating greater struggles for students who year-by-year fall farther behind. Additionally, lack of motivation can be an unintended consequence of these well-intended practices.

### **Grading the test**

The above-stated breakdown of test question percentages provides a comprehensive assessment of lesson concepts and skills and the overall unit concept. The combination of straightforward and progressively more challenging questions will likely yield a range of student performance, but the overall test should be designed so that all students can pass.

If a teacher or a student is surprised at a low or failing test grade, then either the teacher has not engaged in effective formative assessments or the student has not taken advantage of the information provided by his results on the LP assessments. The teacher may have used unexpected question formats. The student may not have made the effort to address identified concerns or may not have known how to do so. In the matter of student effort, a teacher cannot compensate for its absence, but the teacher can establish a classroom environment in which positive motivation flourishes.

No test should be weighted so heavily as to impact a student’s overall average excessively. However, this can unintentionally occur if a teacher gives too few unit assessments in a marking term. No marking term should ever consist of a solitary unit assessment.

## Performance Assessments (PA) Design

A well-constructed PA provides a robust and comprehensive way to demonstrate competency in relation to a unit goal.

PA statements were introduced in the previous chapter and discussed as the “backward design partner” aligned to the unit goal’s critical thinking level as the following example shows:

- Unit Goal: SWBAT analyze relationships within and between different ecosystems.
- Assessment (PA Statement): SW discuss pollution effects on ecosystem dynamics of the St. Joseph River in a paragraph.

The PA statement is informative but insufficient for students to complete the task. Writing a PA prompt with additional detail and clear directives is necessary. A typical prompt includes questions or tasks that students are to perform and a rubric that delineates Basic, Proficient, and Advanced achievement.

PA prompts do not have a standard structure because they depend on the situation, the task(s) chosen, and whether the prompt expects a performance or a product. Consider three different instances:

- a Spanish language PA in which the teacher assesses primarily with what facility the student engages and communicates with a native speaker, and less whether there is consistent subject-verb agreement, whether the separable prefix is properly placed in the sentence or even whether the vocabulary is correctly used;
- a middle grades writing class, in which the teacher assesses an essay on the adequacy of evidence for a thesis; or,
- a 2nd grade science task in which student groups of 3 are given 8 objects and asked to classify and group them and explain their classification scheme. (A 9th object is then given and students individually are asked in which group they would put it and why based on their scheme.)

Grading with a rubric that describes levels of performance maintains a grader’s focus on the performance as a whole and minimizes any errors in details. Rubrics assess a whole performance or product and describe significant categories of a basic, proficient, or advanced performance or product. Consider the middle school PA: using points to grade a thesis-evidence essay is often meaningless. How does a middle school teacher distinguish between a 76 and an 80 on the essay when the real issue is whether the argument is logical and whether and how the essay convinced? An effective rubric provides both the teacher and student with a clear statement of the performance categories and relative importance of each.

A rubric provides performance components and numeric, descriptive levels of performance achievement. When creating a rubric,

-determine important criteria and weight these categories to align with the key declarative and procedural knowledge taught in the unit and evaluated through the PA. For instance, rows weighted with a multiplier of x2 give more importance to those skills/knowledge. This helps the teacher to design an assessment that targets specific skills and it communicates to students where to focus their attention.

-specify descriptions of performance competency by completing the first column of the rubric with a description of an excellent product/performance, completing the final column with a description of a poor or unacceptable product/performance, and then completing the remaining columns with appropriate and “evenly spaced” descriptions of in-between performances/products.

Two examples of performance assessments with their rubrics follow:

**Example #1 – 4th grade social studies**

Unit Concept:	Map Skills
Unit Goal:	SWBAT apply knowledge of mapping and cardinal directions to areas across the United States.
Performance Assessment	SWBAT prepare a travel route/itinerary and map from Goodyear, AZ, to another destination outside the Southwest region.

**The question prompt given to students:**  
 It’s time to go visit the University of Notre Dame in South Bend, Indiana.  
 1) Tell what two directions you need to travel to get to Notre Dame in Indiana.  
 2) On the way to South Bend you’ll pass through some other big cities and pass some places of interest. List at least five (5) cities and or places of interest that you’ll pass.  
 3) Write at least 5 sentences about each of the cities or places of interest on your map  
 4) Include on your map all of the essential mapping elements we learned about in class.

The Rubric given to students can be seen on the following page.

<b>CATEGORY</b>	<b>4</b> Advanced	<b>3</b> Proficient	<b>2</b> Basic	<b>1</b> Unsatisfactory
<b>Itinerary Components (x2)</b>	The Travel itinerary is clearly detailed, <b>including strong use of cardinal directions</b> and at least 5 plotted sites of interest.	Travel itinerary is mostly detailed, <b>including use of cardinal directions</b> and at least 5 plotted sites of interest.	Travel itinerary is minimally detailed, <b>including inaccurate or little use of cardinal directions</b> and 5 or less plotted sites of interest.	Travel itinerary is not detailed with <b>inaccurate or no use of cardinal directions</b> and less than 5 plotted sites of interest.
<b>Map Components (x2)</b>	All map components (title, compass rose, legend) are included and accurate.	Map components (title, compass rose, legend) are included but some are inaccurate.	Some map components (title, compass rose, legend) are missing and/or are inaccurate.	All map components (title, compass rose, legend) are missing and/or are inaccurate.
<b>Matching of Itinerary and Map (x1)</b>	Travel itinerary matches drawn map route with no errors.	Travel itinerary matches drawn map route with minimal (1-2) errors.	Travel itinerary matches drawn map route with moderate (3-4) errors.	Travel itinerary does not match drawn map route at all.
<b>Quality of Information (x1)</b>	Information for each site of interest meets required length (5+ sentences) and is described in strongly detailed, accurate, and organized paragraphs	Information for each site of interest meets required length (5+ sentences) and is described in mostly accurate and organized paragraphs.	Information for each site of interest does not meet required length (5+ sentences) or is described in inaccurate and/or disorganized paragraphs.	Information for each site of interest does not meet required length (5+ sentences) and/or is inaccurate, irrelevant, or missing.

Grading Scale:

24-22: A 19-21: B 16-18: C 13-15: D

## Example #2 – High School Physics unit focused on 2-dimensional motion

Unit Concept:	2-Dimensional Motion
Unit Goal:	SWBAT analyze the path of a projectile in two-dimensional motion.
Performance Assessment	SWBAT determine range or launch angle of a projectile launched horizontally or at an angle.

### The question prompt given to students:

Using the data table provided from the catapult demonstration just shown, it is your job to determine how successful my catapult is at launching marshmallows and marbles. Show all work and explain your answers.

- 1) Determine the initial velocity for both a marble and a marshmallow.
- 2) Calculate the horizontal range for the catapult launching a marshmallow.
- 3) What would the range of the catapult be if our launch angle were changed to 10, 15, and 20 degrees?
- 4) On my first attempt last night, I was able to launch the marshmallow 1.3 meters. What was my launch angle for this attempt? What would the angle have been if I launched the marble 1.3 meters?

The Rubric given to students can be seen on the following page.

CATEGORY	4	3	2	1
<b>Description of how to find initial velocities (x0.5)</b>	A correct procedure for finding the initial velocities of both objects is explained.	A correct procedure for finding the initial velocity for one object is explained with some right ideas about how to find the other one.	A correct procedure for finding the initial velocity of one object is explained.	Some correct steps and measurements are listed but the procedures are not present.
<b>Bronze Level Question (x8)</b>	The horizontal range of the projectile is correctly found with all work correctly shown.	The correct procedure for finding the horizontal range is used, but there are one or two math errors.	One or two necessary values are found and steps in the procedure are present with correct work.	There is no correct work shown and no correct values are found.
<b>Silver Level Question (x1)</b>	All three correct ranges are found with all correct work shown.	The procedure for finding the ranges is present but there are one or two math errors.	Some of the correct steps are taken and some correct work for finding the ranges is shown.	There is no correct work shown and none of the correct steps are taken.
<b>Gold Level Question (x0.5)</b>	The correct angle is found with all correct work shown.	The procedure for finding the angle is correct with only one or two math errors.	Some of the correct steps are taken and some correct work for finding the angle is shown.	There is no correct work shown and none of the correct steps are taken.

Grading Scale:

40-36:A 35-31:B 30-26:C 21-25:D

## Grading the Performance Assessment using a Rubric

A well-designed rubric is a key instructional tool for students as well as a grading instrument for teachers. It is highly recommended that the teacher share the rubric with students when the PA is assigned, allowing for a class discussion of the expectations and improved understanding of how mastery of each skill will be assessed. By releasing a rubric only after the PA is completed and graded, the opportunity to use the rubric as an instructional tool is lost.

A full rubric with descriptive performance components is a helpful assessment tool and instructional instrument. Though this type of rubric requires extensive initial planning, the careful crafting of performance components helps students know the expectations and minimizes the need for the teacher to make lengthy narrative comments about student performance during the grading process. By using the numeric value of the columns, multiplied by the weight assigned to each row as determined by the relative significance of those specific skills, the holistic assessment provided by the rubric can be translated into a numeric value if needed. In example 1, ratings are tallied and then assigned a letter grade according to the pre-determined grading scale. In example 2, the weighted values for the Bronze, Silver, Gold level tasks lead to an easily understood final grade.

Similar to grading tests, no performance assessment should be weighted so heavily as to impact a student's overall average excessively, and no marking term should ever consist of a solitary unit assessment.



# Unit Summary

Throughout this chapter, the steps for unit planning have been discussed:

1. We begin by surfacing an enduring understanding/unit concept and from that write a unit goal.
2. We next choose a unit summative assessment that aligns with the goal at the same critical thinking level.
3. We then shape the unit's lesson sequence in a logical way in order to help students build the requisite knowledge and skills needed to achieve the goal. In thinking about lesson sequence, we encouraged referencing standards, textbooks, and supplementary resources in order to list unit components, then taking time to logically organize the components and finally use these components to write a sequenced set of lesson objectives.

We have also looked at assessment in the unit planning model and emphasized that all assessment is formative and used to guide instruction.

You are now invited to practice your unit planning skills. Included below are sample standards that require more than a lesson for student mastery. Choose a standard and from it think about an enduring understanding/unit concept, unit goal, and unit assessment. Once determined, undertake the steps to sequence unit components and ultimately organize lesson objectives.

## Standards:

<b>Elementary Science</b>	
<b>NGSS: 4-ESS3-2</b>	Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.
<b>Grade Six Language Arts</b>	
<b>CCSS.ELA.RL.6.3</b>	<b>Key Ideas and Details:</b> Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.

High School Algebra

CCSS.MATH.

CONTENT.HSA.SSE.B.3

Write expressions in equivalent forms to solve problems.

Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

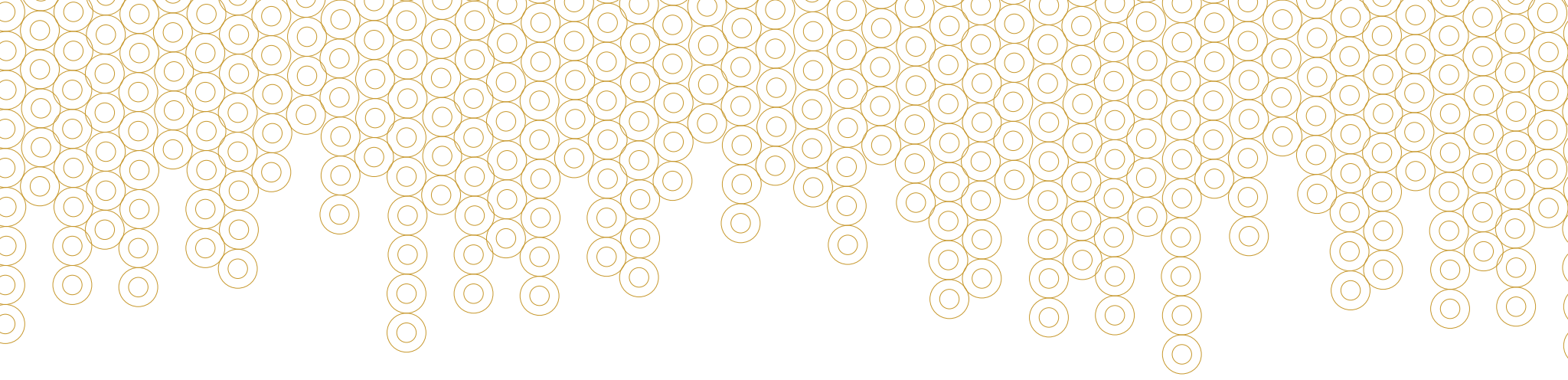
Unit Concept:

Unit Goal:

Unit Assessment PA:

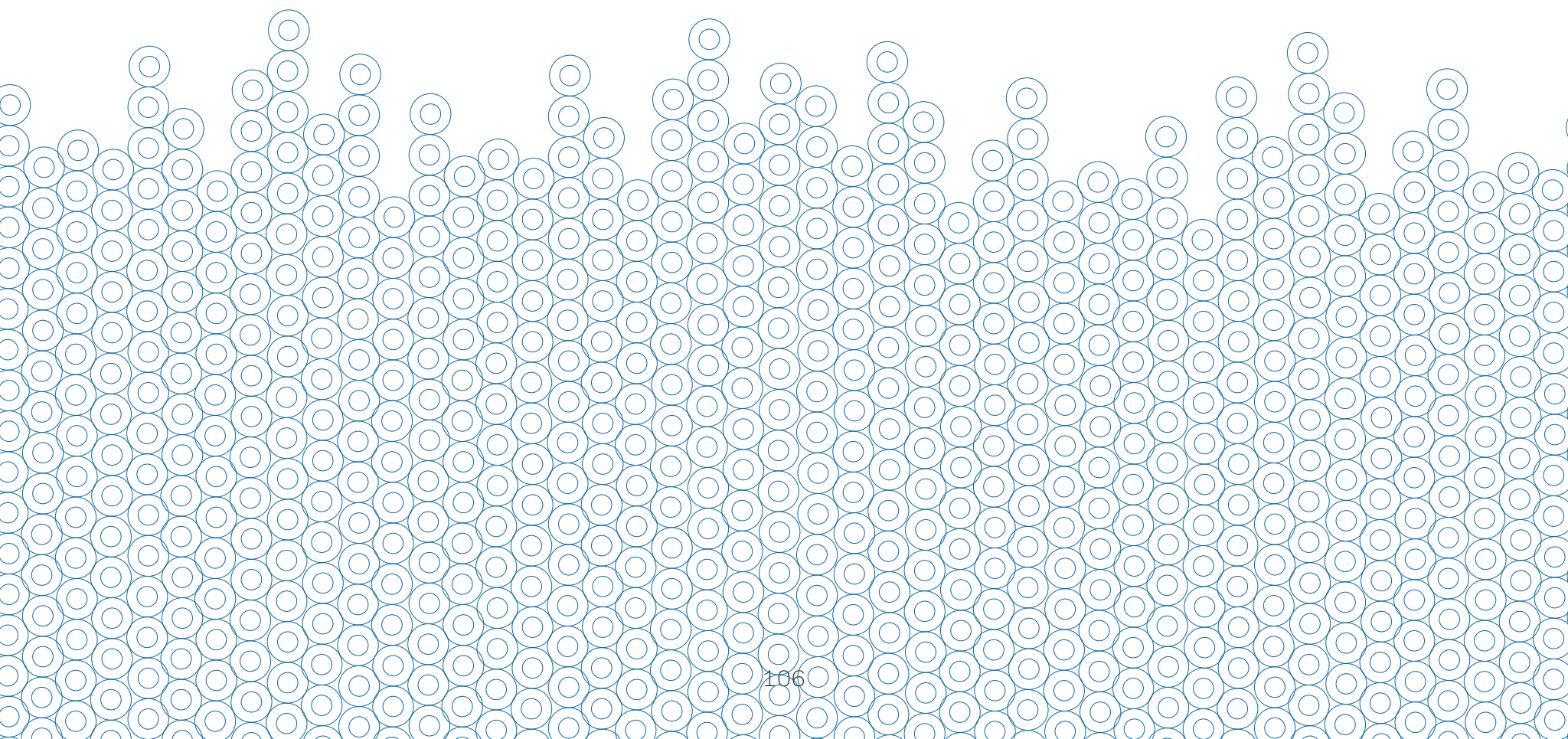
Important unit content

<p>Unit Components</p>	<p>become Organized unit components</p>	<p>become A logical sequence of lesson objectives</p> <p>LP1 SWBAT .....</p> <p>Unit Assessment</p>
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# Chapter 6

Sample Unit Cover Pages



# Introduction

The previous two chapters introduced essential elements of the ACE unit plan framework and a process for developing a unit.

- Determine the unit's enduring understanding/unit concept (1) and from it write a unit goal (2);
- Develop a unit performance assessment (3) aligned to the unit goal;
- Organize a logical sequence of lesson objectives (4);
- Assess (5) each lesson objective formally with an end of lesson assessment and the overall unit goal with a performance assessment.

These essential components are noted on the cover page:

Unit # 1		[1]	Course Page Estimated Duration	Unit Cover Page Duration
Unit Rationale				0
Unit Goal		[2]		
Unit Assessment		[3]		
Lesson # (Click on the LP# to jump to that LP)	Estimated # of days	Lesson Objective Lesson Assessment [4 and 5]	Benchmarks or Standards	
<a href="#">LP1</a>		Objective: Assessment:		
<a href="#">LP2</a>		Objective: Assessment:		
<a href="#">LP3</a>		Objective: Assessment:		
<a href="#">LP4</a>		Objective: Assessment:		
<a href="#">LP5</a>		Objective: Assessment:		
<a href="#">LP6</a>		Objective: Assessment:		
<a href="#">LP7</a>		Objective: Assessment: PERFORMANCE ASSESSMENT [5]		

In this chapter, three units are provided showing the progression from stating important unit content (column 1), to organizing the content into a logical progression of lesson concepts/skills (column 2), to organizing the lesson concepts/skills into lesson objectives (cover page, column 3). As you review these sample progressions, consider these questions.

1. Note the unit's progression as revealed in the order of lesson concepts/skills. How is the order successful in building conceptual and procedural knowledge?

2. Lesson assessments are not noted in these examples. Take time to consider possible end of lesson assessments that might work well given the stated objectives.

The final four examples are completed cover pages.

1. As you consider each of the samples, think about the progression of lesson concepts/skills. Take a moment to write these components next to each objective. How is the order successful in helping students build conceptual & procedural knowledge to become self-reliant thinkers and users of knowledge?
2. Think about alternative performance assessments that would also be aligned to the unit goal, realizing there are many ways to evaluate a unit.

# 9th Grade English

Unit Concept: Devices of Poetry Enhance Poetry and its Meaning

Unit Goal: SWBAT analyze poetic devices to create a valid interpretation of a poem.

Components Concepts/Skills	Organized Components Based on logical progression/complexity	LESSON PLAN OBJECTIVES	
Meter Similes Metaphor Rhyme Stanza Imagery Onomatopoeia Perspective Lines Personification Alliteration Diction Tone Form Theme	Basic Elements of Poems: Meter, rhyme, stanza, lines  Figurative Language: Simile, Metaphor, Personification  Sensory Engagement: Alliteration, Imagery, Onomatopoeia, Symbolism  Tone of Poem: Diction, Figurative Language, Imagery  (E&R) & (UKM) Form and Subject Matter  Perspective	1 Objective:	SWBAT identify the basic elements of poetry including meter, lines, stanza, and rhyme.
		2 Objective:	SWBAT analyze the use of figurative language (similes, metaphors, and personification) to suggest meaning in a poem.
		3 Objective:	SWBAT analyze the utilization of sensory engagement (alliteration, imagery, onomatopoeia, symbolism) in a poem.
		4 Objective:	SWBAT determine the tone of a poem using diction, figurative language, and imagery.
		5 Objective:	SWBAT analyze poetic devices such as figurative language, sensory engagement, diction, and form to create a valid thematic interpretation of a poem.
		Objective:	Test
		6 Objective:	SWBAT examine the fit between poetic form and subject matter.
		7 Objective:	SWBAT analyze different perspectives on a literary theme.
8 Objective:	SWBAT analyze contrasting literary themes of poems on the same subject.		
Assessment:	(Performance Assessment)		

# Middle School Mathematics (7th Grade)

Unit Concept: Surface Area & Volume of 3-D Shapes

Unit Goal: SWBAT apply generalized formulas for area, surface area, and volume to solve real world problems.

Components Concepts/Skills	Organized Components Based on logical progression/complexity	LESSON PLAN OBJECTIVES		
Area Perimeter Solids Pyramids Surface Area Volume Slicing Solids Quadrilaterals Triangles Cylinders Right Prisms Cubes Nets Generalize Formulas Apply to real world situations	(A&I) Shapes & Solids: Triangles, Quadrilaterals, Cubes, Pyramids  Slicing Solids: Plane sections, Slicing 3-D Solids  Area & Surface Area: Generalize Formulas, Area, Surface Area  Volume: Generalize Formulas, Volume, Cylinders, Prisms  (E&R) & (UKM) Nets  Real World Problems	ACQUIRING & INTEGRATING		
		1	Objective:	SWBAT draw identified geometric shapes with given conditions.
		2	Objective:	SWBAT describe the 2-D figures that result from slicing 3-D figures (right rectangular prisms and pyramids).
		3	Objective:	SWBAT solve real world and mathematical problems involving area and surface area of 2-D and 3-D objects.
		4	Objective:	SWBAT solve real world and mathematical problems involving volume of 3-D objects.
		TRADITIONAL TEST		Objective:
EXTENDING & REFINING		Objective:	SWBAT construct nets for the surface areas of 3-D objects.	
USING KNOWLEDGE MEANINGFULLY		Objective:	SWBAT apply generalized formulas for area, surface area, and volume to solve real world problems.	
		Assessment:	(Performance Assessment)	
		PERFORMANCE ASSESSMENT		

# Elementary Science (2nd Grade)

Unit Concept: Animals need air, food, and shelter to survive.

Unit Goal: SWBAT describe the needs of animals and how they meet them.

Components Concepts/Skills	Organized Components Based on logical progression/complexity	LESSON PLAN OBJECTIVES	
Human Impact on animals Mammals Reptiles Amphibian Air Shelter Food Plants Other animals Sun Food Chain Animal habitats Animal adaptations	Animal Classification: Mammals, reptiles, and amphibians  Habitats and animal needs: Air, food, and shelter  Animal Food: Plants, other animals, sun, and food chain  Animal adaptations  Human impact on animals	1 Objective:	SWBAT identify given animals as mammal, reptile, or amphibian.
		2 Objective:	SWBAT explain how the three basic needs of animals are provided in an animal's habitat.
		3 Objective:	SWBAT explain that animals depend on plants and other animals for food, identifying the sun as the first step in a food chain involving plants.
		4 Objective:	SWBAT illustrate how animals adapt to survive in their different environments.
		5 Objective:	SWBAT explain how animal needs can be threatened by human actions.
		6 Objective:	SW sketch a habitat for a given animal and describe how each essential need is addressed through interaction with the environment or another living thing.
		Assessment:	(Performance Assessment)
<b>PERFORMANCE ASSESSMENT</b>			



# 9th Grade Spanish

Unit # 2	Lección 1: ¿Qué te gusta hacer?		Course Page Estimated Duration	Unit Cover Page Duration
<a href="#">Click to Return to Course Page</a>			13	13
Unit Rationale	After beginning our time in Spanish with some basic memorized phrases, students will expand their ability to communicate interpretively, interpersonally, and presentationally through discussing activities they like and do not like to do. This communication is accompanied by a cultural focus on the United States; not only are there Spanish speakers in the United States, but my students can personally and developmentally relate to young Spanish speakers in a city like Miami. Our grammatical knowledge of English will be drawn upon as we discuss infinitives, subject pronouns, as well as construction using "me gusta", where students will be able to compare their communication in English to their newfound Spanish ability. Finally, the students will be able to use these skills to take their skills outside the classroom through the construction of a letter to a Spanish speaker in the US, expanding their curiosity and helping them see the wide reach of Spanish in our country and world.			
Unit Goal	SWBAT express who they are, what they like to do, and where they are from in the context of a Spanish-speaker living in Miami, both orally and in writing.			
Unit Assessment	SW write an introductory letter to a Spanish speaking student from Miami.			
Lesson #	Estimated # of days	Lesson Objective Lesson Assessment	Benchmarks, Standards or Mastery Codes	
<a href="#">LP1</a>	3	Objective: SWBAT identify pasttime and food vocabulary.	ACTFL 1.2, 4.1	
		Assessment: SW demonstrate knowledge of vocabulary through a vocabulary quiz in the form of an agenda.		
<a href="#">LP2</a>	3	Objective: SWBAT express being and location using all subject pronouns and the conjugations of the verb ser.	ACTRFL 1.1, 1.2, 4.1, 5.1	
		Assessment: SW apply the verb ser to people around the world by labeling locations on a map and presenting them orally.		
<a href="#">LP3</a>	3	Objective: SWBAT express things they do and do not like to do using gustar+ infinitivo expressions.	ACTFL 1.1, 1.2, 1.3, 4.1	
		Assessment: SW write an email detailing things and actions that they and their friends do and do not like.		
<a href="#">LP4</a>	2	Objective: SWBAT discuss cultural influences of Spanish-speakers on American culture in the city of Miami.	ACTFL 1.1, 2.2, 3.1, 3.2, 4.2	
		Assessment: SW explain some of the basic cultural aspects of Miami through a brief writing composition.		
<a href="#">LP5</a>	2	Objective: SWBAT communicate their likes, dislikes, and where they are from to a Spanish speaker in the United States	ACTFL 1.1, 1.3, 3.1, 4.2, 5.2	
		Assessment: SW write an introductory letter to a Spanish speaking student from Miami.		

# Middle School Social Studies

In the following example, note the inclusion of two summative assessments separated by a lesson that allows for extending and refining knowledge.

Unit # 1	It's all about the Via: Is Rome the Eternal City?		Estimated Duration
			15
Unit Rationale	This unit initiates the conversation about movement, our course theme, by introducing the idea that the migration of people, goods, and ideas are an "eternal" part of human history. The Roman Empire is an apt place to begin due to its cultural influence, impact and evidence of both change and continuity over time (indicated by the moniker "Eternal City") as well as the tangible infrastructure of Roman roads that fostered movement.		
Unit Goal	SWBAT explain how the power of Rome has shifted over time with evidence from maps, symbols, and art.		
Unit Assessment	SW explain the movements of Roman people, ideas, and goods in a graphic novel page. The graphic novel page will be evaluated on its inclusion of all three types of movement, historical accuracy, and incorporation of relationships of power (how the Roman empire gained/lost power), speaking to the standard that "traces the rise and fall of ancient Rome."		
Lesson #	Estimated # of days	Lesson Objective Lesson Assessment	Benchmarks, Standards or Mastery Codes
LP1	2	Objective: SWBAT explain the legendary founding of Rome.	I.1,3 V.7
		Assessment: SWBAT explain the legendary founding of Rome in a comic strip with symbols and important landforms.	
LP2	3	Objective: SWBAT compare the Roman monarchy to the Roman republic.	I.3 III.4
		Assessment: SW compare the Roman monarchy to the Roman republic using content vocabulary in a Venn Diagram.	
LP3	3	Objective: SWBAT analyze the role of Julius Caesar in the Roman republic.	V.8
		Assessment: SW write a rationale for a nameplate of Julius Caesar given a study of his leadership.	
LP4	3	Objective: SWBAT evaluate the statement "All roads lead to Rome" with evidence from the ancient world.	I.2 II.2
		Assessment: SW evaluate the statement "All roads lead to Rome" with evidence of the engineering in ancient Rome.	
LP5	1	Objective: TEST	
		Assessment: TEST	
LP6	2	Objective: SWBAT analyze how power and people moved during a Roman chariot race.	V.7
		Assessment: SW write an annotation for a digital simulation of a Roman chariot race drawing on movements of people, goods, and ideas.	
LP7	1	Objective: PA: SWBAT explain how the power of Rome has shifted over time with evidence from maps, symbols, and art.	I.3 III.4 V.7
		Assessment: PA: SW reconstruct the movements of Roman people, ideas, and goods in a graphic novel page.	

# Elementary Reading (Grade 5)

In the following example, note attention to both a reading and writing objective within each lesson and how the lesson assessment relates to both.

Unit #3	Using Holes to look at the theme of relationships		Duration
			16
Unit Rationale	Students are at an important turning point in their lives, on the brink of adolescence. Relationship both with peers and with superiors while become increasingly important but also will become tumultuous at times. In Holes, Stanley Yelnats enters an entirely new world at Camp Green Lake. He learns to navigate the situation he has entered through the relationships he forms. By understanding those relationships, students will see how necessary relationships are in order to thrive as an individual.		
Unit Goal	SWBAT use text evidence to describe how relationships impact characters' lives.		
Unit Assessment	SW use text examples to describe the impact of Stanley and Zero's friendship on both characters in a two paragraph expository response.		
Lesson #	Estimated # of days	Lesson Objective Lesson Assessment	Standards
<a href="#">LP1</a>	3	<b>Objective:</b> SWBAT explain what makes Camp Green Lake different from other camps. SWBAT write a topic sentence.	CACC.5.RL.1-6, 10 CACC.5.W.1,2
		<b>Assessment:</b> SW explain what makes Camp Green Lake different from other camps and write a topic sentence in an expository paragraph.	
<a href="#">LP2</a>	3	<b>Objective:</b> SWBAT describe whether or not they think Stanley should have chosen prison or Camp Green Lake. SWBAT write supporting reason sentences.	CACC.5.RL.1-6, 10 CACC.5.W.1,2
		<b>Assessment:</b> SW describe whether or not they think Stanley should have chosen prison or Camp Green Lake and write supporting reason sentences in an expository paragraph.	
<a href="#">LP3</a>	3	<b>Objective:</b> SWBAT use text evidence to support what the water line represents. SWBAT write elaboration sentences for each supporting sentence.	CACC.5.RL.1-6, 10 CACC.5.W.1,2
		<b>Assessment:</b> SWBAT use text evidence to support what the water line represents and write elaboration sentences for each supporting sentence in an expository paragraph.	
<a href="#">LP4</a>	3	<b>Objective:</b> SWBAT compare and contrast the Warden and Mr. Pendanski's treatment of other people. SWBAT write conclusion sentences	CACC.5.RL.1-6, 10 CACC.5.W.1,2
		<b>Assessment:</b> SW compare and contrast the Warden and Mr. Pendanski's treatment of other people and write conclusion sentences in an expository paragraph.	
<a href="#">LP5</a>	3	<b>Objective:</b> SWBAT explain why Sam and Katherine Barlow's relationship is different from others' at the time. SWBAT use a variety of transition words and phrases	CACC.5.RL.1-6, 10 CACC.5.W.1,2
		<b>Assessment:</b> SW explain why Sam and Katherine Barlow's relationship is different from others' at the time and use a variety of transition words and phrases in an expository paragraph.	
<a href="#">LP6</a>	1	<b>Objective:</b> SWBAT use text evidence to describe how relationships impact characters' lives.	CACC.5.RL.1-6, 10 CACC.5.W.1,2
		<b>Assessment:</b> PA - SW use text examples to describe the impact of Stanley and Zero's friendship on both characters in a two paragraph expository response.	

## Elementary Math (Grade 2)

In the following example, the unit's author utilizes single-day lessons, each with its own assessment, and quizzes on concepts from groups of lessons. The unit ends with a comprehensive test. The cover page is split between the next two pages.

Unit	Place Value to 100		Course Page Estimated Duration
			16
Unit Rationale	For this unit, the students will be working on their place value to 100 skills. This is following the unit on single digit addition and right before the unit on double digit addition. It is important for this unit to be placed here so that the students have a solid understanding of their 2-digit place values before they work on adding double digit numbers.		
Unit Goal	SWBAT solve problems using knowledge of two-digit place values.		
Unit Assessment	SWBAT solve problems using knowledge of two-digit place values by taking a test.		
Lesson #	Estimated # of days	Lesson Objective Lesson Assessment	Benchmarks, Standards or Mastery Codes
<a href="#">LP1</a>	1	<b>Objective:</b> SWBAT identify a group of 10 ones as 1 ten.	2.NBT.1
		<b>Assessment:</b> SWBAT identify a group of 10 ones as 1 ten by completing pages in their workbook.	
<a href="#">LP2</a>	1	<b>Objective:</b> SWBAT identify the place and value of each digit in numbers to 99.	2.NBT.9
		<b>Assessment:</b> SWBAT identify the place and value of each digit in numbers to 99 using place-value models.	
<a href="#">LP3</a>	1	<b>Objective:</b> SWBAT recognize number words 20-99.	2.NBT.3
		<b>Assessment:</b> SWBAT recognize number words 20-99 with slate practice.	
<a href="#">LP4</a>	1	<b>Objective:</b> SWBAT classify the value of a designated digit in a two-digit number.	2.NBT.1
		<b>Assessment:</b> SWBAT classify the value of a designated digit in a two-digit number by playing math Jenga.	
<a href="#">LP5</a>	1	<b>Objective:</b> SWBAT show the expanded form of 2-digit numbers.	2.NBT.3
		<b>Assessment:</b> SWBAT show the expanded form of 2-digit numbers by completing a worksheet.	
<b>QUIZ 1</b>			

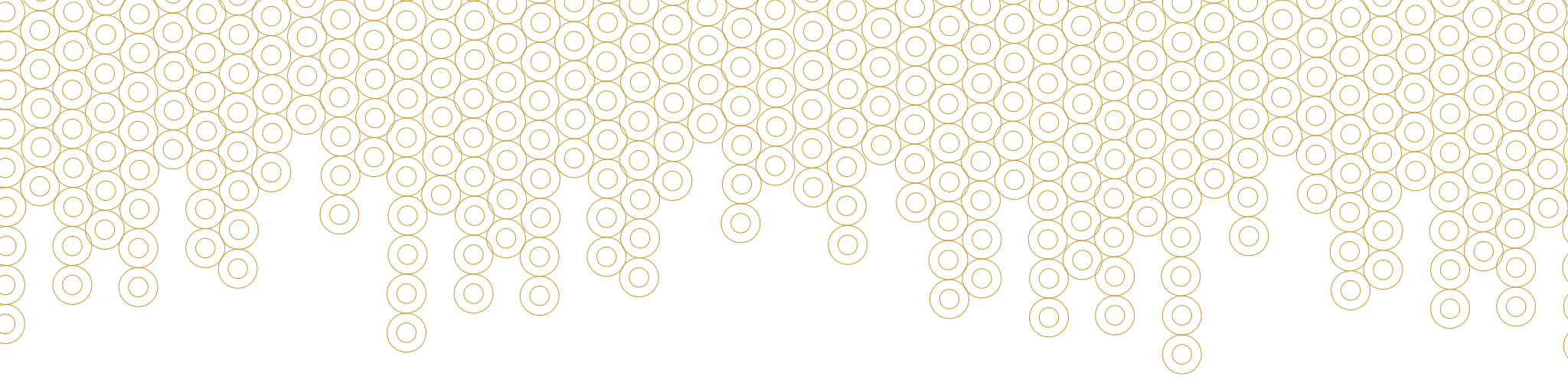
<a href="#">LP6</a>	1	Objective:	SWBAT compare numbers using the symbols for greater than, less than, and equal to.	2.NBT.4
		Assessment:	SWBAT compare numbers using the symbols for greater than, less than, and equal to by completing a partner activity.	
<a href="#">LP7</a>	1	Objective:	SWBAT order numbers to 100.	2.NBT.4
		Assessment:	SWBAT order numbers to 100 by completing a white board activity.	
<a href="#">LP8</a>	1	Objective:	SWBAT estimate numbers to 100.	2.OA.4
		Assessment:	SWBAT estimate numbers to 100 by completing slate practice.	
<a href="#">LP9</a>	1	Objective:	SWBAT use a number line to round to the nearest ten.	2.NBT.3
		Assessment:	SWBAT use a number line to round to the nearest ten by completing a worksheet.	
<b>QUIZ 2</b>				
<a href="#">LP10</a>	1	Objective:	SWBAT identify even and odd numbers.	2.NBT.1
		Assessment:	SWBAT identify even and odd number by playing place value war.	
<a href="#">LP11</a>	1	Objective:	SWBAT count to 100 by 3s and 4s using a hundred chart.	2.NBT.2
		Assessment:	SWBAT count to 100 by 3s and 4s using a hundred chart by completing a worksheet with a hundreds chart.	
<a href="#">LP12</a>	1	Objective:	SWBAT count and complete number patterns.	2.NBT.3
		Assessment:	SWBAT count and complete number patterns by completing an interactive activity in the math notebooks.	
<a href="#">LP13</a>	1	Objective:	SWBAT use ordinals through thirty-first to identify position.	2.OA.1
		Assessment:	SWBAT use ordinals through thirty-first to identify position with slate practice.	
<a href="#">LP14</a>	1	Objective:	SWBAT solve problems by using logical reasoning.	2.NBT.8
		Assessment:	SWBAT solve problems by using logical reasoning using their math workbook.	
<a href="#">LP15</a>	1	Objective:	SWBAT review the concepts and skills learned throughout the unit.	
		Assessment:	SWBAT review the concepts and skills learned throughout the unit by playing a jeopardy game.	
<b>1</b>		<b>TEST</b>		

## Unit Cover Page Development Think Aloud Videos

Below are links to videos of former and current ACE Teachers walking through the development of a unit cover page for their classrooms. Listen to their thought process as they determine the enduring understanding, unit goal, and the proper sequence of lessons necessary for students to build knowledge.

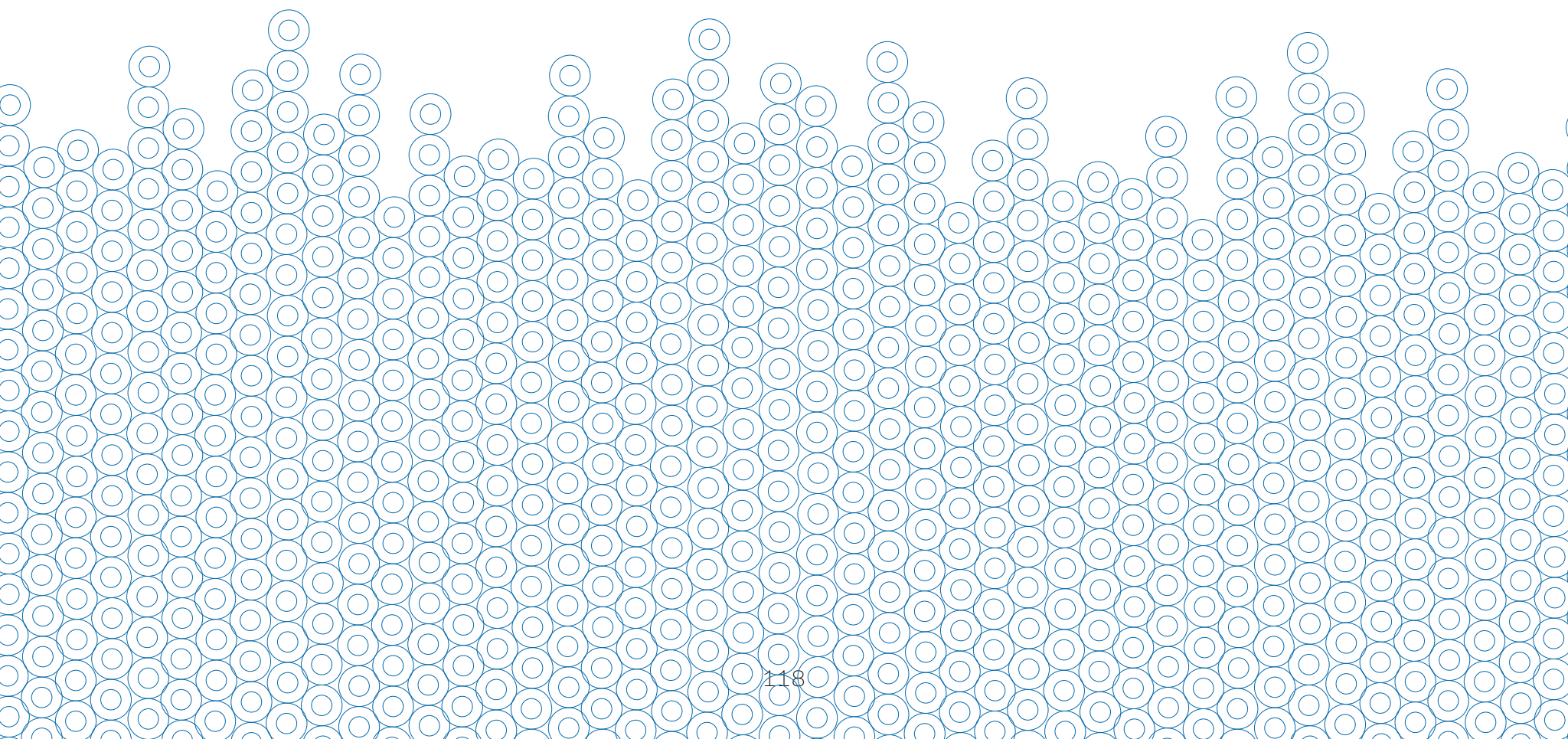
[Middle School Science - Michael Masi](#)

[Middle School Social Studies - Thomas McGuire](#)

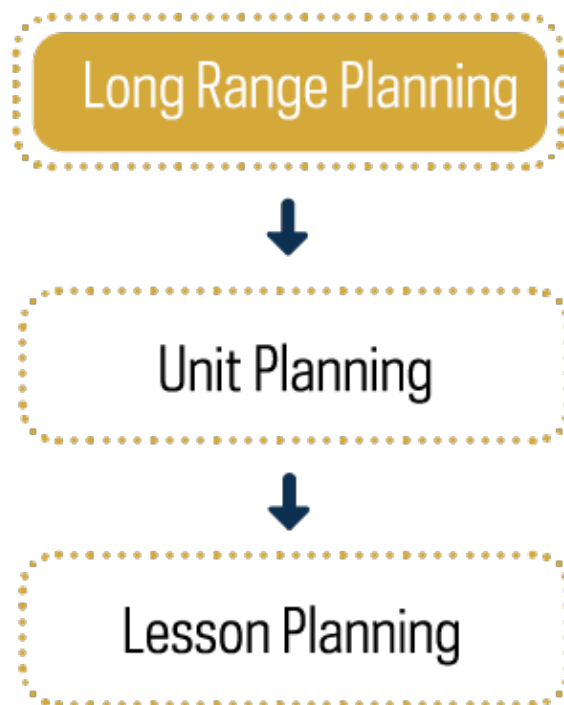


# PART 3

## Long Range Planning



# Overview

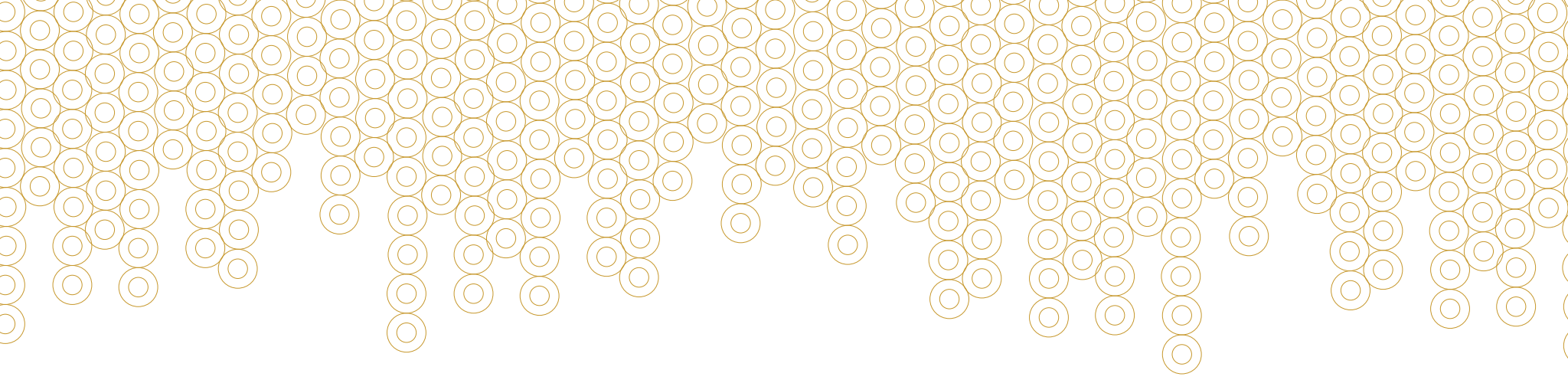


Just as individual lessons are not taught in isolation, neither are units. A course or subject is comprised of multiple units that work together to develop overarching objectives that ACE refers to as course/subject outcomes. The outcomes identify what the learner will know and be able to do by the end of a course/subject and reflect broad conceptual knowledge and essential skills that will be achieved by the course/subject's end. Units provide the framework for organizing instruction that will help learners achieve these outcomes.

The process for developing a course or planning a subject falls within the category of long range planning. Chapter 7 will introduce the elements considered when long range planning and show the process of planning a course/subject in the ACE planning model. Chapter 8 will provide samples of course plans and subject plans at the elementary, middle, and high school levels.

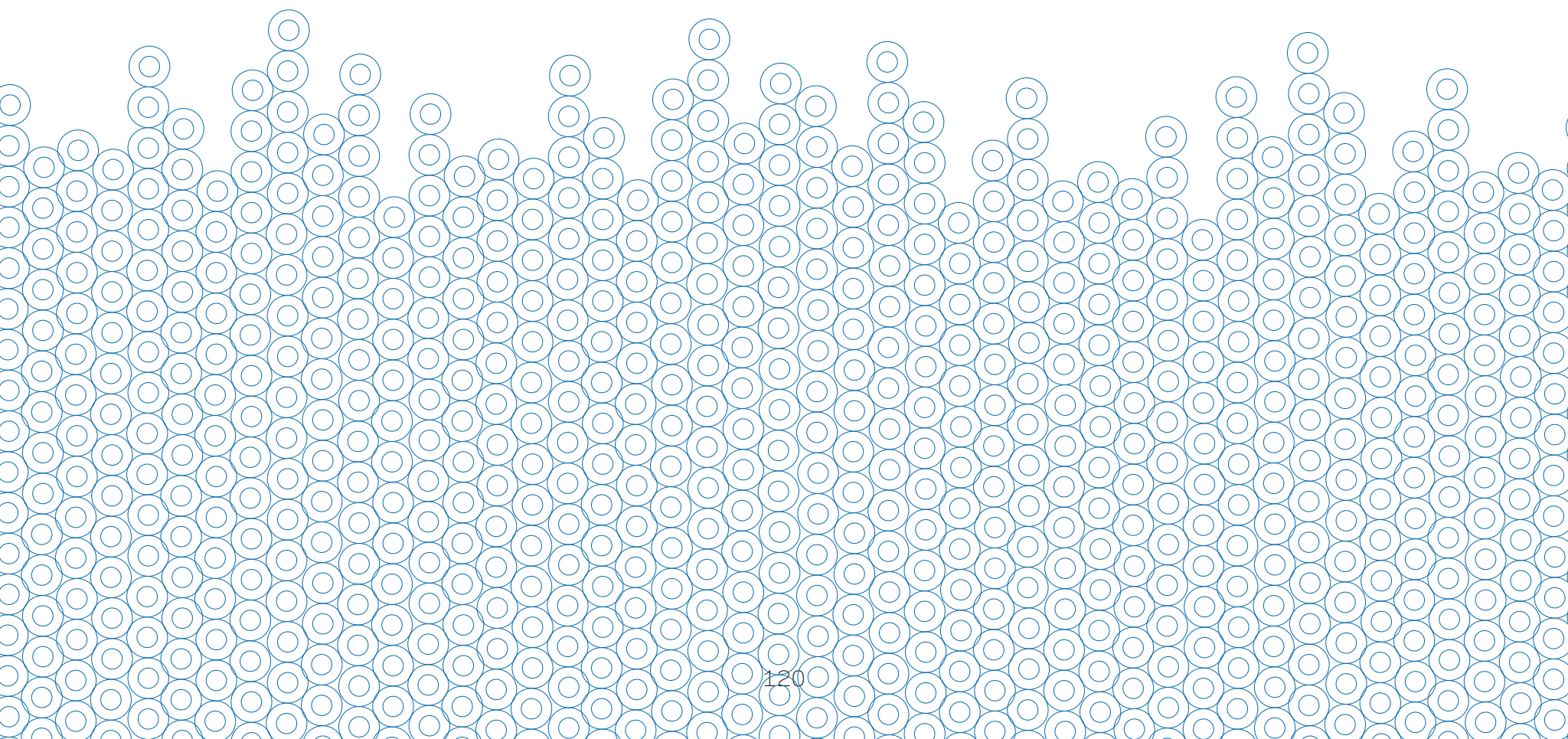
As you read through these next few chapters, think about the benefits of long range planning. Why is it helpful for a teacher to sketch out units for the entire year?





# Chapter 7

## Elements of Long Range Planning



# Introduction & Long Range Planning Grid

Units and lessons are not created within a vacuum. They are planned for a specific context, take into account specific standards, and align to a particular school's academic year calendar. The process of long range planning begins with a review of the school calendar to note important dates such as:

- Beginning and end of marking periods
- Dates when grades are due/ Dates when grade reports will be available to students and parents
- Dates for Parent/teacher conferences
- Holy days and School holidays
- Dates when standardized tests will be given
- School events (fund raisers, assemblies, picture days)
- Staff development days

Having a sense of when these events occur can help you realize the actual instructional time you have available each week.

A long range planning grid which can help you see the school year at a glance. Columns for dates, calendar notes, and number of school days provide a structure against which unit concepts can be considered.

## Course/Subject:

Week	Week of	Calendar Notes	Days	Unit Name	Content	A	Standards
1							

Consider the sample provided. In using this template, the teacher knows to be aware of certain special events and non-teaching days that will impact time for teaching. Additionally, the end of the first quarter is easily noted. Against this first quarter calendar, a teacher can begin to frame units of study. In the process of doing so, the teacher first consults state and/or diocesan standards, school curriculum expectations, textbooks, and supplementary material, and uses a combination of these resources to name possible units. Thought is given to order, approximate length of time needed for each unit, and the relationship between units. Next, specifying unit content provides a rough outline of important unit topics. Finally, completing the "A" column is especially helpful. "A" stands for assessment and within this column a teacher can estimate when a test (T) or performance assessment (PA) will be given.

Note: An Excel & Google Sheets file template for long-range planning are available [on the ACE website](#).

Sample - 6th Grade - Social Studies

W	Week of	Calendar Notes	Days	Unit Name	Content	A	Standards
1	Aug. 3 - 7	1/2 day sessions on the 6th and 7th	2	The Study of History	Procedures		SS6.H1.01, SS6.H1.06
2	Aug. 10 - 14	Aug. 12 - Open House	5		Procedures - 2; study of history - 3		
3	Aug. 17 - 21		5		first humans		
4	Aug. 24 - 28		5		first humans	T	
5	Aug. 31 - Sept. 4		5	Mesopotamia and Fertile Crescent	Geography - growth of Sumerian society		SS6.H3.01, SS6.H3.02, SS6.H3.08
6	Sept. 7 - 11	Sept. 7 - No school - Labor Day	4		Mesopotamia - invasions		
7	Sept. 14 - 18	ITBS Testing	5				
8	Sept. 21 - 25	School pictures - 24th	5		Phoenician contributions	T	
9	Sept. 28 - Oct. 2	Oct. 2 - no school fall break	4		modern day region	PA	
10	Oct. 5 - 9	Oct. 5-6 - no school	3	Ancient Egypt	Geography		SS6.H3.02, SS6.H3.03, SS6.H3.08
11	Oct. 12 - 16	Oct. 16 - end of first quarter	5		religious practices		

While completing this grid is challenging for the first year teacher, the process is also incredibly helpful, resulting in a visual outline that reminds the teacher

- To plan for more than a single assessment in a quarter
- To see that all required standards are noted
- To hold oneself to a reasonable timeline for a unit of instruction

Planning in such a manner helps the teacher stay on target throughout the course of the year. It nonetheless remains important to realize that a yearlong plan is a fluid document and requires a certain amount of flexibility so that attention can be given to adapt for unforeseen events or slower rates of learning by the students.

A slightly altered version at the elementary level allows for multiple content areas to be considered at one time. Using this template, the teacher would note content and possibly standards within each subject area.

Week	Week of	Calendar Notes	Days	Literacy	Math	Religion	Social Studies	Science
1	Aug. 3 - 7	1/2 day sessions on the 6th and 7th	2					
2	Aug. 10 - 14	Aug. 12 - Open House	5					

# Course Planning - Course Outcomes

## From Planning Outline to Course/Subject Development

While the yearlong planning outline is helpful, it doesn't offer enough detail to provide sufficient guidance to course or subject teaching. Thoughtful course/subject planning focuses on two areas: course outcomes and the unit concept narrative. We consider each.

### Course Outcomes

All planning is based on standards, some of which can be taught and learned during daily lesson activities while others require an entire lesson plan to accomplish. Still others require two to four weeks to accomplish and are the basis for units. Finally, there are standards that are developed and refined over the course of multiple units, that is, they take more than one unit to teach and learn. These "benchmark" standards are the basis for course outcomes. They often focus on essential skills and broad conceptual knowledge.

Teachers plan roughly four to seven outcomes that state what students will know and be able to do in this particular subject or course at the end of one academic year. These outcomes define the knowledge and abilities developed throughout the year during several units of study.

The course tab of the ACE planning template offers a course/subject page template with space to note course outcomes.

Title	Subject or Course	
Course Outcomes		
1	SWBAT ...	Standards
2		
Etc.		

Unit #	Estimated # of Days	Unit Concept or Question	Unit Goal	Unit Rationale	Unit Assessment	Standards for Units
1						
2						
Etc.						

The remainder of the course/subject page contains familiar categories: unit concept, unit goal, unit assessment, standards for unit. The one category not previously discussed pertains to the unit rationale which answers the question, "why teach this unit at this point in the school year" in a brief one to two sentence description. Here is where the story of the course/subject unfolds.

## Course Narrative

Developing a coherent curriculum requires identifying which “enduring understandings” to include and choosing how to sequence them. Like a good story, a good course/subject captures the interest of students with the first unit and continues with a “plot” of subsequent concepts that engages them. Within the course/subject story, units progress logically which helps to facilitate meaning making by students as they grapple with enduring understandings. For self-contained elementary classrooms, developing course narratives is also an opportunity to identify themes for integrated units incorporating multiple content areas.

There are a few ideas to keep in mind when sequencing units.

In Science planning, beginning at the macro level invites observations before moving to the micro level which incorporates use of models to help with understanding. These ideas are seen in the first three units of this eighth grade physical science course.

Unit Name	Unit Rationale
Unit 1: Properties of Matter	This unit will introduce a macroscopic concept of matter before entering into the microscopic. The focus will be on observable science.
Unit 2: Mixing matter: compounds, mixtures, and solutions	This unit will remain on the macroscopic level with observable demonstrations and labs. It does not require knowledge of atomic structure prior to study. It follows unit 1 to build on the concepts of properties of matter and how components of solutions can affect these properties.
Unit 3: Modeling Atomic Structure	Students will be introduced to the atom model after learning about matter. This will precede study of the behavior of atoms and their placement in the periodic table as both depend heavily on atomic structure.

In Social Studies planning, beginning with large, overarching concepts that are then deepened and applied to varied cultures and contexts gives students a framework to understand complex societies from the past, as seen in the first three units of this sixth grade world history course.

Unit Name	Unit Rationale
Unit 1: Agricultural Revolution	This unit uses evidence of the Agricultural Revolution to answer the question "How do we know about early humans?"
Unit 2: Mesopotamia, Egypt	This unit builds off of the previous unit by analyzing artifacts from Mesopotamia and Egypt to answer the question "What do artifacts tell us about the impact of technology on a civilization?"
Unit 3: Olmec, Maya, Aztec, Inca	This unit looks at the characteristics of early American civilizations of the Olmec, Maya, Aztec, and Inca to answer the question "What makes a civilization unique?"

In Foreign Language planning early emphasis is placed on communication using the students' immediate world as a source of content as seen in the first three units of this second year Spanish course.

Unit Name	Unit Rationale
Unit 1: Repaso preliminar de Español 1	This unit is the opening of the second year course of Spanish. It is primarily a paced-review of the first year, designed to ensure students are able to progress in language study. With communication being a central tenet of foreign language study, <b>communication</b> of the students' most immediate world (their schooling, friends and peers, families, and extracurricular activities) is ideal, for it immediately engages students in the language.
Unit 2: Nuestra vida diaria	The ability to discuss daily routines provides an opportunity for students to <b>communicate</b> their daily practices and habits to others. Students will be able to discuss daily routines, taking care of oneself, and enjoying a backpack trip throughout Spain. The unit is aimed at students being able to effectively communicate even more of their most basic tasks throughout the day, continuing the process of description of the self.
Unit 3: ¿Qué hiciste para las vacaciones? Hablamos del pretérito	This unit begins with the understanding that students have completed the discussion of the present, and turns its attention towards discussing the past and actions and events already completed.



In Math planning, beginning with concepts and skills that are the foundation for the rest of the course allows for a natural progression of conceptual understanding for students. Teachers should return to these concepts often in future units, further developing student understanding through repeated exposure. The beginning units should not be a simple review of previous year's content, taught in the same way, but rather should build on students' prior knowledge while allowing sufficient practice to refine skills learned last year. Students should have the opportunity to refine necessary skills and extend prior knowledge as seen in the first three units of this fourth grade math course.

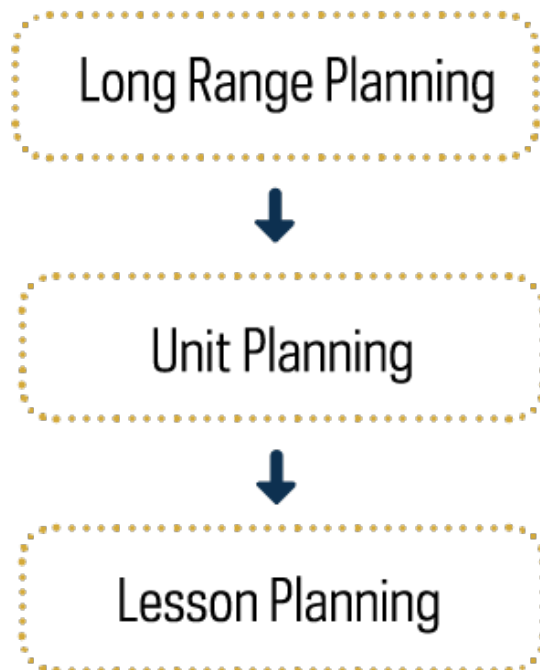
Unit Name	Unit Rationale
Unit 1: Using Numbers - Place Value, Addition, & Subtraction	This unit begins with reviewing place value through the operations of addition and subtraction. Students will learn estimation and rounding strategies used in the rest of the course, while practicing problem solving strategies and working toward fluency in addition and subtraction. Students will also apply addition & subtraction operations to the perimeter of geometric figures.
Unit 2: Using Multiplication to Understand the World Around Us	Building off the last unit, this unit extends student understanding of place value and patterns through multiplication. Students study multiplication through arrays and area of rectangles, focusing on building conceptual understanding of the number theory (factors, multiples) and procedural fluency with basic facts. A particular focus on patterns begins the introduction to algebraic thinking.
Unit 3: Problem Solving with Division	Students use their understanding of multiplication as an introduction to division. This unit allows for further understanding of multiplication and a greater focus on problem solving and patterns. Students practice division strategies to solve a wide variety of problems related to missing sides, remainders, and partial products/quotients.

In English planning, beginning with review of basic skills and building ever-more complex proficiencies properly prepares students to practice and master the chosen form of expression, as seen in the first three units of this Freshman Writing course.

Unit Name	Unit Rationale
Unit 1: Why is grammar important and what was all that stuff that we learned last year?	This unit begins with a review of grammar. In order to write paragraphs, a strong understanding of sentences is important.
Unit 2: How do we write a basic paragraph?	With knowledge of the difference between full sentences and fragments, students focus on how to write a basic paragraph.
Unit 3: How do we vary the style in our paragraphs?	Having mastered the basic paragraph, students now focus on how to write a proficient paragraph with more varied compound sentences.

It is important to remember that teachers write their course/subject story; the textbook does not. The exception to this can be scripted language arts and math courses in early elementary grades, in which students are best served by following the scripted text.

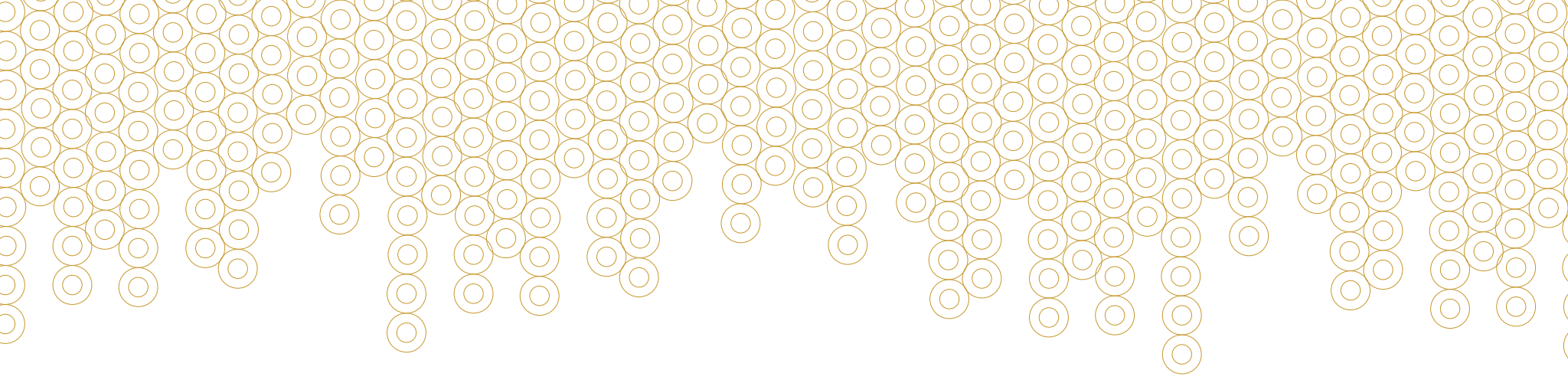
## Summary



The graphic that has accompanied each of the planning chapters points to movement from long range planning to unit planning to lesson planning. Though introduced in reverse order, it remains important to realize that the typical planning process begins with the big picture and moves to the more finely detailed lesson planning. Course plans are comprised of units which are comprised of lessons. All are closely connected and need to be, thus leading to the planning of coherent and comprehensive instruction.

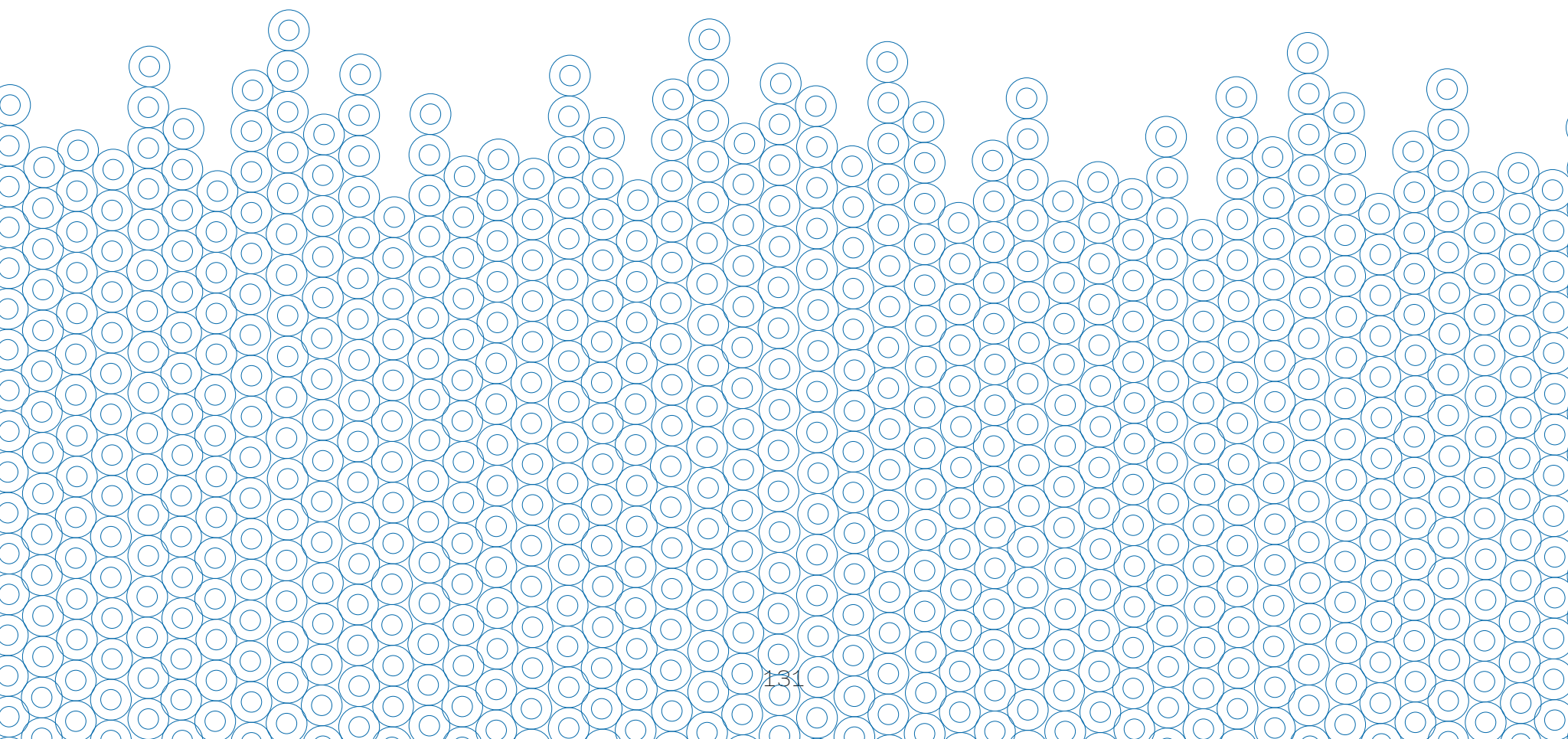
### Questions

1. What are advantages to long range planning?
2. How does a teacher balance depth and breadth of content in planning a course? What needs to be considered? Who or what might you reference as you undertake planning a course/subject?



# Chapter 8

## Long Range Planning Samples



# Course Calendar Sample - Elementary

Weeks	Inst. Days	Science	Social Studies	Religion	Writing	Math	Reading: Daily 5
Aug 15-16	0	Procedures	Procedures	Procedures and HDO: Assumption of B.V. Mary	Procedures	Procedures/ Centers/Testing	Read to Self: Building Stamina (Comprehension focused)
Aug 19-23	5	Sci. Investigation		Procedures and Liturgical Calendar	Intro to writing and Notebook		
Aug 26-30	5		Geog. tools	Scripture	Ideas	Place Value with Add/subtract	
Sept. 3-6	4	Matter			Organization		
Sept 9-13	5				Word Choice		
Sept 16-20	2.5		Order and impact of events	Life of Jesus	Review	Intervals of Time	Listen to Reading: Building Stamina (Expand vocabulary and comprehension focused)
Sept 23-27	2.5						
Sept 30-Oct. 4	5				Sentence Fluency	Money	Read to Others: Build stamina (Fluency and accuracy focused with comprehension and expand vocabulary still present)
Oct 7-11	5	Energy			Voice		
Oct 14-18	5				Conventions	Understand Multiplication and Division	Daily 5 with Mini-lesson texts generally matching writing
Oct 21-25	5		Why Settle?		Review Week		
Oct 28-Nov. 1	4			Halloween/ All Saint's Day	Publishing	Represent Multiplication and Division	
Nov 4-8	5	Light		Life of Jesus	Narrative		
Nov. 12-15	4						

# Course Calendar Sample - Grade 6 Spanish

W	Week of	Calendar Notes		Unit	Content	A
1	Aug 8-9	No school	1	Introduction/ Procedures		
2	Aug 12-16		1	Unit 1: Como estas amigo	Classroom Management/ Greetings	
3	Aug 19-23		1		times of day como estas	
4	Aug 26-30		1		numbers 1-100/ date	
5	Sept 4-6	No school Sept 2-3	1		No Class	
6	Sept 9-13		1		Why conjugate? Ser/ Tener/ origin and age	
7	Sept 16-20		1			T
8	Sept 23-27		1	Unit 2: Quienes Somos	family members	
9	Sept 30-Oct 4		1		adjectives: match number and gender to describe family members	
10	Oct 7-10	No school Oct 11 First Quarter Ends	1		times/ telling time in Spanish/ schedules	
11	Oct 14-18	No School Oct 14	1		activities: sports	
12	Oct 21-25		1		Me gusta activities	
13	Oct 28-Nov 1		1		Me gusta/ te gusta activities: Dia de los muertos	
14	Nov 4-8		1	Unit 3: como te sientes	body parts (making nouns plural...un, una, unos, unas...)	T/PA
15	Nov 11-15		1		body parts (making nouns plural...un, una, unos, unas...)	
16	Nov 18-22		1		te duele, me duele/ pronouns	
17	25-Nov	No Spanish Nov 26, No school 27-29	1		te duele, me duele/ pronouns	
18	Dec 2-6	Dec 6--no school	1		AR conjugations	
19	Dec 9-13		1		AR conjugations	T
20	Dec 16-19	Second Quarter Ends No School Dec 20-Jan 5				

## Course Outcomes Example - MS Science

Course Title	Grade 8 Integrated Middle School Science	
Course Outcomes		NGSS
1	SWBAT describe the impact of current & historical scientific theories on society & the environment over a spectrum of local to global issues.	MS-LS, MS-ESS, MS-PS
2	SWBAT explain relationships between structure and function in biological, physical, and geological systems.	MS-ESS
3	SWBAT plan & conduct scientific investigations, using a variety of methods & tools, to collect & analyze relevant qualitative & quantitative data, using appropriate units.	MS-LS, MS-ESS, MS-PS
4	SWBAT explain that the natural world is a collection of systems & their various interactions with each other.	MS-ESS-1, 2, 3
5	SWBAT describe how systems tend to change until they reach equilibrium and remain that way unless their surroundings change.	MS-ESS-2

## Course Plan Example - World History

Unit #	# of Days	Unit Concept	Unit Goal	Unit Rationale	Unit Assessment	Standard
1	16	<b>River Valley Societies: Harnessing Nature</b>	SWBAT describe the importance of river systems to early civilizations.	6 <sup>th</sup> grade World History is focused on the elements of civilization. In this first unit, the focus is on how civilizations begin - the physical features necessary to sustain a group of people.	In a paragraph, SWBAT describe the importance of the river system to sustaining a population of a new civilization.	1.1, 2.2.1, 2.2.2, 2.2.3, 2.2.4, 4.1, 4.2.2, 4.4
2	15	<b>Ancient Egypt: Technologies from the Ancient World</b>	SWBAT describe new technologies in their own words and their effects on the world.	Technology is integral in the development of a civilization. Using Egypt as a case study, the focus of this unit is on how technology impacts both a specific civilization and the world more broadly.	Through images and words, SWBAT describe how to mummify an apple and how the mummification process impacted the world.	1.1, 1.2.2, 2.2.4, 2.2.8, 2.2.9, 4.1
3	13	<b>Early America: Adapting to the Environment</b>	SWBAT explain how early American civilizations adapted to their environments.	With the advancement of technology, civilizations could move beyond living on a river. This unit focuses on adaptations civilizations made to meet a variety of physical features, using the Americas as examples.	Given a description of a previously unseen early American civilization, SWBAT explain how the civilization could adapt to a specific environment.	1.1, 1.2.1, 1.2.3, 1.2.4, 1.2.5, 4.1, 4.2.2



Unit #	# of Days	Unit Concept	Unit Goal	Unit Rationale	Unit Assessment	Standard
4	14	<b>Ancient India: Origins of World Religions</b>	SWBAT compare and contrast ancient world religions to each other and modern religions.	Belief structures have been central to civilizations since the earliest societies. Using India as the birthplace of ancient religion, this unit asks broader questions about the role of religion in civilizations.	Using a Venn Diagram, SWBAT compare and contrast major world religions.	1.1, 2.2.5, 2.3.1, 4.1, 4.2.5
5	12	<b>Ancient China: Different Ways of Thinking</b>	SWBAT describe philosophies and ideas from Ancient China that influence today's world.	Closely linked to the development of religion is the birth of ancient philosophies. This unit continues the conversation of ancient thought structures that impact civilizations today.	SWBAT respond to "Dear Abby" letters from the perspective of major philosophies and ideas from Ancient China.	1.1, 2.2.4, 2.2.5, 2.2.6, 4.1,
6	17	<b>Ancient Greece: Birth of Modern Government</b>	SWBAT analyze political influences from Ancient Greece on today's world.	Government is another structure essential to ancient (and modern) civilizations. This study of Greece relates directly to the birth and development of modern government structures.	Using a provided paragraph template, SWBAT analyze how Greek ideas of government are manifested in a previously unseen political element in the modern world.	1.1, 2.2.7, 2.2.9, 3.2.2, 3.5, 4.1

Unit #	# of Days	Unit Concept	Unit Goal	Unit Rationale	Unit Assessment	Standard
7	15	<b>Ancient Rome: The Demise of Civilization</b>	SWBAT describe events leading to the fall of Rome and the rise of Christianity.	Having looked at major factors of civilizations, this study of Rome focuses on how these factors can fail to produce a long-lasting civilization.	SWBAT create a cartoon strip and dialogue articulating the events related to the fall of Rome.	1.1, 2.2.7, 2.2.9, 2.2.10, 3.2.3, 3.5, 4.1
8	15	<b>Connections: Exploration &amp; Trade linking Europe, Africa, Asia, &amp; the Middle East</b>	SWBAT analyze how Europeans' desire to obtain goods from Asia sparked exploration and encounter, linking diverse regions and spreading goods and ideas through cultural diffusion.	After looking at civilizations independently, this unit asks students to consider how they interact with one another in one specific arena - economics.	SWBAT create a flow chart analyzing the movement of goods and ideas between Medieval Europe, Africa, Asia, and the Middle East.	1.1, 2.2.10, 2.3.2, 2.3.3, 4.1, 5

## Conclusion

ACE believes that every child is made in the image and likeness of God and that Catholic schools have the important responsibility and unique capacity to contribute to student formation in meeting their diverse needs. (ACE M.Ed. Handbook, p. 4)

This book has emphasized planning practices to support lesson implementation and student learning. It has encouraged making a commitment of time, research and practice in order to plan meaningful instruction. All students are deserving of strong academic and spiritual formation. It takes hard work to plan strong lessons and succeed in their implementation but when done well students benefit. Individual teachers can have a significant effect on student achievement. Consider the chart below based on research summarized by Marzano (2003). It cross references teacher effectiveness with school effectiveness and shows percentile gains of students having different types of teachers in the different school settings.

<b>Two Year Effects on Student Achievement of School and Teacher Effectiveness with Students Entering School at the 50<sup>th</sup> Percentile</b>		
Average Teacher in an Average School yields a Student at the 50 <sup>th</sup> Percentile		
	Most Effective Teacher	Least Effective Teacher
Most Effective School	96 <sup>th</sup> Percentile	37 <sup>th</sup> Percentile
Least Effective School	63 <sup>rd</sup> Percentile	3 <sup>rd</sup> Percentile

\*Chart based on research summary provided by Marzano (2003).

Marzano's summary of research on the impact of teacher effectiveness on student growth led him to conclude that, "Regardless of the research basis, it is clear that effective teachers have a profound influence on student achievement and ineffective teachers do not" (p. 75). Quality planning and teaching matter. The invitation is clear. May you aim to be that effective teacher in whatever setting you find yourself teaching.

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