

Using Assessment for Instruction



International Center
for Leadership in Education

Acknowledgment

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Overview

As schools struggle to find ways for students to complete a rigorous and relevant education, there continues to be a critical need for information about how assessment can be used to increase student performance and improve instruction. The recognition of this need prompted the development of *Using Assessment for Instruction*.

Few educators even a couple of decades ago could have predicted the amount of testing in today's classrooms. Even without the acceleration of this trend required by *No Child Left Behind Act of 2001*, testing – and its more inclusive term, assessment – has become a driving force in the lives of students and school staff today.

This resource kit is designed to demystify the process of assessment and related data-gathering strategies. It provides a clear direction in defining assessment and describes the tools and strategies that can be used for effective assessment. There are materials in the kit geared toward the district/school administrative team and its professional developers. The kit also includes numerous exercises at the end of most chapters devoted to instructional and leadership strategies for both administrators and teachers.

Federal reports about state and national testing programs, media articles, faculty room conversations, administrative meeting agendas, and meetings of local and state boards of education are peppered, if not dominated, by discussions, concerns, complaints, and plans that reflect the preoccupation with measuring student performance. Perhaps more important than the current emphasis on testing and student performance is the realization that this trend likely will not disappear anytime soon — accountability is here to stay. Defining what students ought to be able to know and do based on standards and results is essential. Once schools determined what students should know, it became clear that they then needed to determine whether students are, in fact, learning these skills and knowledge.

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Educators are caught between two worlds. One is the world many of them experienced as students, a world in which students were subjected to tests on a weekly basis, at the end of chapters and, with greater weight, at the ends of quarters, semesters, and school years. There seemed to be little connection between testing and instruction, and the general sense that testing was something that was done *to* students rather than *for* students.

In today's world in which these students are now the educators, they are being asked to focus on the use of student performance data to inform instruction. We are told that assessment can be a wonderful tool. We are asked to demonstrate a different understanding of the instructional process. In this new world, the gathering of student information can and must be used to adjust programs and instruction. But most educators are unprepared for this new world. Their encounters with assessment have been highly personal rather than the result of structured preservice coursework or in-service experiences. Thus, educators' ideas about assessment are based on a sketchy understanding of assessment strategies and/or test construction.

In its work with the identification of high-performing schools around the nation, the International Center for Leadership in Education finds repeatedly that the most successful schools have incorporated the use of data into the daily life of the school. In these schools, the perception is not that assessment is inflicted on students and teachers. They have developed a deeper appreciation of how assessment can serve as a tool to assist students and teachers. It is the hope that many more educators will reach this conclusion after delving into this kit and participating in the many exercises provided.

Chapter 1: Understanding Assessment gives a detailed explanation of assessment, the various types of assessments used in schools, and the important role that formative (benchmark) assessments can play in instructional practices.

Chapter 2: The Assessment Process in Districts and Schools distinguishes between assessments OF learning and assessments FOR learning. Assessments OF learning are snapshots of how much a student has learned as of the test date. Assessments FOR learning occur everyday in the classroom and produces a limited but important set of data for improving learning and instruction.

Chapter 3: Rubrics for Assessment and Evaluation focuses on rubrics for both assessment and program evaluation. All rubrics should have standards-based criteria and a series of outcome levels that allow all involved to see step by step how improvement evolves. The chapter is divided into three parts. The first provides an overview of rubrics, the second focuses on rubrics for administrators, and the third provide rubric strategies for teachers. The chapter also details how two research-based rubric tools developed by the International Center — The Learning Criteria to Support 21st Century Learners and the Components of School Excellence — can be incorporated into assessment strategies.

Chapter 4: How Rubrics Are Used in Schoolwide Programs provides exemplars to show how assessment rubrics are put into practice, with a particular emphasis on using rubrics derived from the Components of School Excellence.

Chapter 5: The Meaning of Data and Assessment details the importance of data presentation and interpretation. Data has many meanings. Assessment, especially high-stakes assessment, also has many meanings and levels. Educators need to become familiar with data and what it means so they can present it appropriately to a variety of audiences. The NCREL/ Learning Point Associates strategies, SMART goals, the Components of School Excellence, test question analysis, and other tools and activities can help focus discussions about data and assessments. The chapter is divided into four parts: an overview, a section devoted to administrators, a section for teachers, and exercises that can be used by both administrators and teachers.

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Chapter 6: Collecting and Sharing Data emphasizes the need to understand fully the rules of and exceptions to the process of reporting data and that data collection needs to be an explicit goal-oriented activity. The chapter also focuses on how to sort through all the available data in order to gain a clear picture of what the data means. The most effective way of making improvements in schools is by engaging in dialogue about improvement that leads to developing action plans. School leaders should ensure that all those who are participating in evaluation and implementation understand the data process, formats, and terminology so they can work efficiently.

Chapter 7: Data Presentation and Communication focuses on the importance of analyzing and reporting data to a variety of audiences and details a three-step data analysis process. Format is an integral component of presentation. It is essential to present data analysis with the intention of doing so clearly, simply, and honestly. Providing information in multiple formats, such as graphs and tables, increases the likelihood that more people will understand the intended message. The chapter is divided into four sections. The first section is an overview on data presentation. The second and third sections detail analyzing and reporting skills for administrators and teachers. The final section offers numerous exercises for educators in a variety of roles.

Chapter 8: Applying Assessments for Instruction ties many of the concepts and strategies presented throughout the kit together. At the end of the chapter is a collection of exercises and templates that teachers can use as a workbook to develop their own assessments and test their ability to analyze data for appropriate feedback.

Two Appendices are included. The first contains a number of articles, online resources, and strategies referenced throughout the kit. The second provides a variety of full-length and expanded rubrics, including the Learning Criteria to Support 21st Century Learners and the Components of School Excellence. These rubrics and the exercises at the end of the various chapters are included on the accompanying CD.



Understanding Assessment

Connecting New Paradigms

This chapter focuses on connecting new paradigms for assessment. Additionally, definitions are provided for a number of instructional/assessment terms that will be used throughout this resource kit. The discussion begins with a brief presentation of terms used around the concept of testing and assessment, as well as an introduction to the most appropriate uses for various forms of assessment.

In the past 20 to 30 years, considerable attention has been paid to various instructional strategies, models, and reforms that educators should employ with students. While direct instruction – “teacher talk” – has proven to be remarkably durable, educators have been challenged to match instruction with learner needs, content goals, and standards-based outcomes. Increasingly, attention is focused on such concepts as cooperative learning, small-group learning, brain-based instruction, learning styles, multiple intelligences, project-based learning, etc. Journals and conferences are rich in information about the ways in which educators can bring these instructional strategies into their classrooms.

During this time, however, little attention has been devoted to the ways assessment might enhance approaches for increasing student performance. Since the focus has been the increased use of state mandated high-stakes assessments, it is not surprising that this use has been the dominant understanding of assessment. Moreover, for most educators, experiences with assessment have been defined in terms of weekly quizzes, end-of-chapter tests, or quarterly and final exams. In fact, the recent emphasis on high-stakes testing and the notion of and consequences for an “underperforming” school have added to the impression that the state tests, now more often called assessments, are things that are done *to* us, the educators, rather than *for* us.

Educators’ experiences with testing and assessment frequently reflect their experiences as students, so it is useful to contrast the older practices with those of today.

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information about student performance and/or program effectiveness may include a variety of strategies, such as:

- formal
- informal
- written or verbal
- oral or nonverbal
- content-based tests and/or quizzes
- performance based

Forms of assessment that incorporate these strategies include:

- formative
- summative
- norm-referenced tests
- criterion-referenced tests

Formative assessment is a process through which data is gathered on a periodic basis during instructional cycles. This allows for evaluation of instructional effectiveness and student progress in relation to proficiency standards. We emphasize the use of standards because the world of assessment relies on a standards-based framework.

Formative assessments usually are administered and reviewed for a limited and internal school and classroom audience, such as students, fellow teachers, and parents. Data provides the opportunity for feedback to the student by identifying strengths and weaknesses. These assessments also provide information back to the teacher so that he or she can better tailor instruction of the tested concepts to students' needs.

Strategies for formative assessment may be formal or informal and may include written, oral, nonverbal, or a combination of approaches. No matter what the format, assessments generate data that can be used to inform whether the instruction worked and whether all students grasped the concepts.

Formative Assessment

Paul Black, P. and Dylan, W. "Inside the Black Box: Raising Standards Through Classroom Assessment"

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Informal Formative Assessment Table		
Examples of Informal Assessment of Students	Data and Its Capture by Teacher	Possible Use of Feedback
Oral individual assessment asks students to affirm their understanding of a concept. Such questions are always asked before identifying a student for a response.	Teacher mental list or check-off in notebook	Teacher can form small student groups based on level of understanding and assign specific clarification tasks.
Oral together assessment questions seek choral responses. Teachers pay careful attention to the number of students who respond.	Teacher mental list	Change or not change instruction of concept.
The visual responses (e.g., thumbs-up or -down, open hand versus closed hand) method asks students to provide a signal that corresponds to their level of understanding. Initially, students may be asked to do this with their eyes closed to minimize self-consciousness.	Teacher mental list or check-off in notebook	Teacher can form small student groups based on level of understanding and assign specific clarification tasks.
The red/green cards approach asks students to turn green cards if they understand and red if they do not.	Teacher mental list or check-off in notebook	Teacher can form small student groups based on level of understanding and assign specific clarification tasks.
Written (e.g., quizzes, exit cards) assessment elicits short written responses that can be quickly reviewed by the teacher to assess levels of understanding. For example, students are asked to complete exit cards that elicit responses to such questions as: “What I did I understand?” “What do I need to learn more about?” “What don’t I understand?”	Teacher check-off in notebook	Teacher can reorient future lessons based on level of understanding. If questions asked are higher Bloom’s Taxonomy may get more useful information.
Performance tasks require the demonstration or performance (e.g., reading, experiment, dance move, creation of a geometrical condition) of a discrete task directly focused on the concept just completed.	Teacher uses rubric based on standards of one or more content area(s).	Teacher with individual students discuss rubric results and use rubric as basis for learning plan.
Analogies ask students to provide a visual or verbal analogy.	Teacher check-off in notebook as well as notations of preferred learning style and perhaps of student experience and/or interest.	Teacher can reorient future lessons based on level of understanding.
Group sampling asks selected students to complete any of the activities previously described, paying careful attention to include students who typically perform at various proficiency levels for any given row of a rubric.	Teacher uses rubric based on standards of one or more content area(s).	Teacher with individual students discuss rubric results and use rubric as basis for learning plan.

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Summative assessments usually are comprehensive in nature and are given at the end of the unit, class, or course to ensure that students have met the standards. Summative tests are often called a “snapshot” because they offer a quick picture of where a student is on a particular test date. Large-scale state assessment programs that consist of annual tests administered at or near the end of a school year are examples of summative assessment. The tests usually are conducted to provide accountability information for the benefit of an external audience, such as a policymaker or some other leading decision maker. AYP calculations, for instance, are made using summative assessment data. Data reliability is strengthened when such assessments are conducted serially over time and when the evaluations are corroborated using other methods and measures.

In incorporating the Rigor/Relevance Framework, explained earlier in this chapter, and using the same energy scenario, a summative assessment would include other understandings about energy, such as transformation and convection.

A summative assessment might be in the Quadrant B of the Rigor/Relevance Framework in which students are able to apply knowledge in real-world predictable situations. However, at the end of the unit/chapter, a slightly different problem-solving assessment might be given, such as in the following table. Note that the table might incorporate an alternative assessment in addition to a more traditional one. The traditional assessments are, however, generally in the lowest quadrant level (Quadrant A) of the Rigor/Relevance Framework and thus have limited use in assessing real learning.

Summative Assessment

Data reliability is strengthened when summative assessments are conducted serially over time and when the evaluations are corroborated using other methods and measures.

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use. Student results are then compared to those of the norm group. Tests such as the California Achievement Test (CTB/McGraw-Hill), the Iowa Test of Basic Skills (Riverside), the Praxis (ETS), and the Metropolitan Achievement Test (Psychological Corporation) are “normed” using a national sample of students. Because norming a test is such an elaborate and expensive process, the norms typically are used by test publishers for seven years. All students who take the test during that seven-year period have their scores compared to the original norm group. NRT items frequently cover a wide range of content, and there is little assurance that the items will represent what is taught locally or what is required by state standards.

In summary, NRTs may:

- determine individual performance in comparison to others
- contain items or questions designed to provide significant variance in scores, meaning that the best test developers can make it possible to differentiate among the abilities of students

NRTs could be used by a school or district to:

- provide a diagnostic baseline at the beginning of the year, such as readiness for reading or Algebra I
- provide detailed information not provided by criterion-referenced testing to compare studies across districts and/or states and/or countries, such as with the Trends in International Mathematics and Science Study (TIMSS) or the Programme for International Student Assessment (PISA)
- analyze items as to when they can be viewed and related to local and/or state standards, for example with the National Assessment of Educational Progress (NAEP)

Criterion-Referenced Tests

Criterion-referenced tests (CRTs) measure performance against a specific objective – a criterion or standard – rather than against the performance of other students. These tests are created most frequently by teachers, schools, and states to measure student achievement of standards. They are most appropriate for assessing what concepts and skills students have learned from a segment of instruction. Thus, instead of a bell curve representation of student performance, a teacher or school leader would examine a graph of the data resulting from the CRT to find proficiency levels of all students.

Classroom quizzes and exams that are based on course objectives are examples of CRTs. It is possible to create quizzes and exams that allow a teacher or school leader to identify weaker and stronger students. Most often, questions emphasize different knowledge or thinking levels of the concepts.

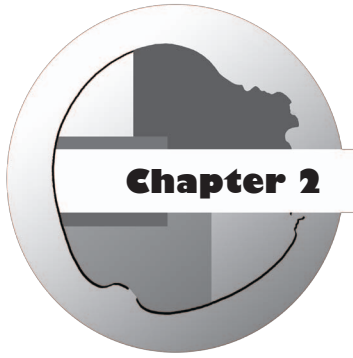
In summary, CRTs:

- determine individual performance or mastery in comparison to a standard or criterion
- contain items or questions based on standards or objectives given to students

CRTs can be used in a school or district to obtain information about how well students have learned the knowledge and skills that they are expected to have mastered. This information may be used to help determine how well the student is learning the desired standards-based curriculum and how well the school is teaching that curriculum. CRTs also report student proficiency levels on a selected group of state standards. The information provided by such assessments offers a snapshot of the students in the district in terms of content, subgroup, and other factors.

CRTs should not be used to make comparisons where local and/or state curricula vary considerably or to make individual diagnostic judgments about students when the assessments have been constructed to provide program information. For example, CRTs are not appropriate when

Criterion-referenced tests can be used in a school or district to obtain information about how well students have learned the knowledge and skills that they are expected to have mastered.



The Assessment Process in Districts and Schools

Overview

This chapter discusses how learning and/or curriculum program assessment can lead to program evaluation. To begin, we distinguish between two types of student assessments in districts and schools: OF learning assessment and FOR learning assessment.

OF learning assessment is a snapshot of how much a student has learned as of a test date. It is often thought of as a final exam in the sense that all that has to be learned by the particular date has been learned. Most public discussions about assessment are about data from OF learning assessments.

FOR learning assessment occurs every day in the classroom and is generally thought of as a continuing process under the teacher's control. It produces a limited, but important set of data. FOR learning assessment is standards based and:

- occurs as the student is moving toward full learning – forming understandings and skills
- is often under the control of teacher groups, schools, or districts, as with some benchmark assessments
- enables teachers to assess student steps toward full understanding and application of the standards

The following exercise tests the readers' understanding of OF learning assessment versus FOR learning assessment concepts.

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OF vs. FOR Learning Chart		
OF Learning	FOR Learning	Scenario
		End-of-year or statewide test
		Driving test
		Advanced Placement (AP) comparative government test
		Medical, lawyer, or psychology board exam
		Winning soccer's World Cup
		Teacher Praxis test
		National Board Certification
		Ph.D. or Ed.D. in school administration

Try this exercise again, see possible answers and explanations, and create your own list of scenarios in Exercise 2a: OF Learning vs. FOR Learning at the end of this chapter.

Was it hard to choose just one type of assessment for some items? Sometimes, an assessment belongs in both learning categories, which is why it is important to further clarify the terms.

When schools and districts only look at OF learning assessments, they are focusing on assessments at the end of a grading cycle, such as the end of a year. After the assessment is complete, the grade is final. Then, the teacher and student go on to the next topic, course, or year. Traditionally, this kind of assessment is not thought of in terms of feedback to the teacher, students, or school leadership. Most students simply go on to the next class or grade.

Data from OF learning assessments was barely collected in prestandardized testing times, except for transcript purposes. However, OF learning assessment data can yield much useful information. Educators are now beginning to use this assessment data to begin the process of student and teacher feedback, which can encourage program or curriculum evaluation.

OF Learning Assessment

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There is a drop in student performance in one cluster.	There may be a misalignment between the district curriculum and state assessment in the area of number sense and estimation. This is where we need a thorough review by all appropriate teachers. Specifically, we should analyze the state items, if available, or the state test specification versus the district's curriculum/texts.
Possible Conclusions or Next Steps	
<ul style="list-style-type: none">• Allocation of resources this year: purchase software to support students during the analysis period.• Allocation of resources next year: budget for professional development money for mathematics teachers.• Additional questions: Should we look into cluster-specific professional development?	

OF learning assessment often has been called unfair because it is only a one-time snapshot. It also may appear to be an inadequate measure of student knowledge and ability. However, it can be helpful in beginning initial analysis as well as in the development of good follow-up questions and suggestions for resource allocation.

An added bonus is that the data is not too complicated. Therefore, it is good information for those who are at the beginning stages of data understanding and analysis or for those who simply need an overview.

An additional factor is that statewide assessments are based on standards and, therefore, are trying to ensure that all students meet those standards. These are not norm-based tests in which students are compared only with one another. These tests seek to answer the question: Are the students able to use the standards at the appropriate grade level?

With the advent of the work of researchers and advocates such as Richard J. Stiggins, Dylan Wiliam, and Paul Black, many educators now are talking

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Chapter 2 The Assessment Process in Districts and Schools

Stiggins, R,
R. *Assessment
Crisis: The
Absence Of
Assessment FOR
Learning*

Black, P., and William
D. "Inside the Black
Box: Raising Standards
Through Classroom
Assessment"

about assessment occurring as an ongoing, essential, and methodical practice during the entire learning process. Continual classroom assessment can be designed:

- to find out how the student is doing at specific stages (benchmark times) during the learning process
- for specific, periodic developmental points of the curriculum
- as a regular and continuing check on progress, often as informal formative assessment, to ensure that students are kept to a standard and do not fall behind
- to provide assessment results that may be used as conversation starters between the teacher and the individual student
- with an end point or target in mind

This means that periodic formative assessment is not an end; rather, it is a beginning of the next stage in learning. FOR learning assessment situates data as an essential component to the process of learning when:

- the assessment is standards based
- the data is a critical part of the assessment
- the assessment and resulting data are a critical part of the learning process

In addition, there should be a continuing series of feedback cycles during the academic year within each classroom. Therefore, at all times, the teacher and students are conjoined in the learning/assessment process, with the final target being the OF learning assessment.

Data from formative assessments are used to decide next steps for one or more of the following:



Part A: Defining the Rubric

Overview

See the Rubrics section of the appendices.

A rubric is a set of categories that defines and describes the important components of the work being completed, critiqued, or assessed.

Glossary of Assessment Terms. www.ozarka.edu/assessment/glossary.cfm

Rubrics, Scoring & Grading. www.engin.umich.edu/teaching/assess_and_improve/handbook/direct/rubric.html

Rubrics are used routinely both in the K-12 environment and in fields such as medicine, engineering, and manufacturing. They may be used for a finalized product or program, during formative stages, or during development. They can be scored. But the true value of rubrics is that they allow the assessor and/or evaluator, as well as the receiver of the results, to examine specific levels of a standard to be reached and to decide on feedback solutions.

Higher education also uses rubrics. The College of Engineering at the University of Michigan, for instance, promotes faculty use of rubrics. The college states:

“Rubrics help students consciously assess their own learning and performance. Using rubrics, instructors share scoring and grading criteria with students, which focuses students’ attention during their initial learning and also when they interpret instructors’ feedback. Rubrics enhance fair scoring and grading. A valid rubric measures what it is intended to measure and increases the objectivity and reliability of scoring. Rubrics publicly represent the instructor’s expectations.”

There are many definitions and variations of the word *rubric*. A good, inclusive definition is: “A rubric is a set of categories that defines and describes the important components of the work being completed, critiqued, or assessed. Each category contains a gradation of levels of completion or competence with a score assigned to each level and a clear description of what criteria need to be met to attain the score at each level.”

This definition allows for rubrics to be used either to evaluate programs or to assess student work. A rubric is a measure for outcomes. It acknowledges that there are several features of a given task or program and that for each feature there may be different levels of accomplishment or competence.

There are many ways to write a rubric. A common format generally has the following structure:

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This exercise guides you through the steps for creating a project-based learning plan. Complete each section, in turn, for your project.

Exercise 3b: Project-Based Learning Template

A. Project Information

This section of the template enables you and your partner(s) to think about what you really plan to accomplish with your project.

Project Title	
Grade Level	
Purpose/Essential Question/ Summary (Why are you doing this activity? What are you saying about it to the students?)	
Objectives (create up to three)	
Standards (be focused and minimal in this list)	English Language Arts: Second content:
Bloom's Taxonomy Levels (circle one or more)	Δ B.1 Knowledge Δ B.2 Comprehension Δ B.3 Application Δ B.4 Analysis Δ B.5 Synthesis Δ B.6 Evaluation
Application Levels (circle one or more)	Δ A.1 Knowledge in one discipline Δ A.2 Application within discipline Δ A.3 Application across disciplines Δ A.4 Application to real-world predictable situations Δ A.5 Application to real-world unpredictable situations

Chapter 3 Rubrics for Assessment and Evaluation

Summative Assessment	Activity Standards (example)	Assessment Description and Related Rubric(s)
Activity or activities in which students share their knowledge in a culminating event or project or report. Remember to assess the content as well as the thinking and application levels.	English language arts stan standard:	
	Second content standard:	
	Presentation:	

B. Project Plan

Once you have completed Part A: Project Information, this section should be easy to complete quickly. It is important that the formative assessment planning leads up to, and prepares the student for, summative planning.

Preliminary Planning Needs	
A. Resources for the Project	English Language Arts:
	Second content:
	Core and/or informational books for reading:
	Content resources needed, such as: a) informational papers/articles – b) media such as video, audio –
	Technology (Do you need to bookmark sites? Do you need a lab schedule?):

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B. Project Groups a) content learning b) connections to student interest	1.	
	2.	
	3.	
	4.	
	5.	
	6.	
Formative Assessment		
Activity or activities that engage students in learning, including field trips, other explorations, visiting experts, projects, etc.	Activity Standards Indicator or Criterion (example)	Assessment Description and Related Rubric(s)

C. Project Schedule

It is useful to write out a schedule so that partner teachers are in agreement about the timing of the project. You will need to extend this table to accommodate a timeline.

**Exercise 8b:
Developing
Formative
Assessments**

A group of teachers has been assigned to use the district’s high school biology textbook to develop a modern curriculum in which students can see applicability to real life in the context of meeting standards. The unit planning tables in Exercise 8a may be helpful for this exercise. Since this is for the high school level, instruction is to be in a project-based format to allow for choices, for the use of rubrics, and for socialization.

<p align="center">Table 4 Developing a Plan for Benchmark Assessments Based on 9th Grade Science Curriculum</p>			
Textbook Contents	Standards	Standards-Based Assessments	
<ul style="list-style-type: none"> • Is this the best order for the content? • Does it build well from prior knowledge? 	What standards are being assessed?	Where should formal (benchmark) formative assessment occur?	Where should informal formative assessment occur?
The Definition of Life			
The Kingdom <i>Monera</i>			
The Kingdom <i>Protista</i>			
The Kingdom <i>Fungi</i>			
Biochemistry			
Cell Structure and Function			
Cellular Reproduction			
Photosynthesis			
The Kingdom <i>Plantae</i>			
DNA			
Protein Synthesis			
Cellular Respiration			
The Kingdom <i>Animalia</i>			
Genetics			
		<p>Summative assessment:</p> <ul style="list-style-type: none"> • What are the essential questions based on the standards that students should be able to answer? • What performance assessments would demonstrate understandings and application? 	

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Make a list of summative assessments from which students may choose:

- 1.
- 2.
- 3.
- 4.
- 5.

Use Table 5 to decide where benchmarking is to occur for the first half of the book. Remember that Bloom's Taxonomy Levels and application levels are integral to ideas around content. (Use fewer or more rows.)

Benchmark Times/ Dates or Chapters	Content	Bloom's	Application	Reasons

To maintain motivation and interest, describe three kinds of assessments that could be used during the first two chapters.