Designing Lessons, Units, and Learning Activities
Designing Lessons, Units, and Learning Activities

Learning is a purposeful activity. Well-planned lessons and units of instruction are characterized by clearly defined and shared outcomes together with appropriate assessments. The choice of classroom activities including researching, writing, creating, collaborating, and performing is linked inextricably to instructional outcomes and assessment. The most engaging activities take account of students’ interests, prior learning, and their readiness to perform. Curriculum is extensive and time is limited. Effective teachers plan with colleagues in order to identify common skills and concepts that appear across subject disciplines. Coordination between different classes serves to save unnecessary repetition of learning and makes more holistic sense for students as they process new ideas.

Charlotte Danielson (2011) asserts that “instruction is designed to engage students and advance their learning through the content” (p. 18). Well-organized teachers create lessons and units that are clearly and methodically sequenced. Time allocations reflect the relative importance of key concepts and important instructional outcomes. Activities include tasks that “represent high-level thinking” and offer students a degree of choice and challenge.
Information Alignment

Materials presented in this eBook align with the following:

**Module Questions**

- How can clear, goal-focused lesson and unit designs enhance instruction?
- How can connecting learning goals with other content areas facilitate the transfer of knowledge?
- How can assessment choices impact student learning?
- How can well-designed activities lead students to understand what you want them to know and be able to do by the end of the lesson/unit?

**Learning Outcomes**

- Explore how to design clear, goal-focused lessons and units.
- Investigate how to connect learning goals with other content areas to facilitate the transfer of concept learning among other disciplines.
- Explore assessment choices that check for understanding of the goal.
- Analyze how to create learning activities that are aligned to instructional outcomes and appropriate for all students.

**Module Topic Focus**

- Unit/Lesson Learning Goals
  - Clarity of Learning Goal(s)/Standards
  - Rationale for Backward Design
  - The ADDIE Model
  - Concepts That Connect Across Disciplines
- Unit/Lesson Assessments
  - Aligned Assessment
  - Measures of Student Learning
- Unit/Lesson Activities
  - Types of Activities
  - Designing Activities
At time of publishing, all of the website information was accurate. Due to the nature of the internet, some of the website information may have changed or become unavailable. Please see the references section of the corresponding online module for the most up-to-date information.

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Unit/Lesson Learning Goals

ThStandards provide teachers with the map and compass to navigate through the learning process. Instructional outcomes present students with learning goals and manageable steps along the academic journey. Osters and Tiu (n.d.) define instructional outcomes as “what a student is expected to demonstrate” and curriculum standards as “what a program is expected to accomplish.”

The inherent time constraints of the K-12 educational system demand that teachers work smarter, not harder. Employing specific planning strategies (such as backward design or the ADDIE model) help teachers to clarify, address, and reflect upon learning goals while making valuable connections through learning activities that help advance student learning.

Clarity of Learning Goal(s)/Standards

Instructional outcomes are derived from curriculum standards. Appropriate instructional outcomes reflect the intent of associated standards, incorporate local examples, and take account of the developmental stage and prior learning of students in the class. Instructional outcomes are created by teachers with the appropriate standards in mind. According to the Pennsylvania Department of Education (2012), “Although the standards are not a curriculum or a prescribed series of activities, school entities will use them to develop a local school curriculum that will meet local students’ needs” (p. 3).

The Florida Department of Education (2012) asserts that teachers should account for a number of parameters when composing outcomes. Key factors include the transference of understanding between disciplines, inclusion of all students in terms of their learning needs, specificity in wording, a time frame that is realistic for students, and a set of learning activities that enables students to demonstrate their attainment of the outcomes. A key characteristic of a good instructional outcome is that it describes what a student will learn [knowledge, skill, or disposition] rather than what they will do [learning activity].

“The acronym SMART is often used to describe the components of well-written goals” according to the Indiana Department of Education (2011). SMART goals are applicable to students when they approach learning and to teachers when they plan for instruction or engage in professional development. SMART goals use five characteristics (see Figure 1) to describe accomplishments not activities.

![Figure 1: The SMART goal model.](image)

The SMART goal model may be used to measure the practicality and purpose of goals at whole school and classroom levels.

Robert Marzano (2014) asserts the necessity of constructing goals that represent “different levels of complexity” and proposes a taxonomy (see Figure 2) composed of four levels.

<table>
<thead>
<tr>
<th>Level of Goal</th>
<th>The student is able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retrieval</td>
<td>recognize information and follow procedures</td>
</tr>
<tr>
<td>Comprehension</td>
<td>discern key aspects of knowledge</td>
</tr>
<tr>
<td>Analysis</td>
<td>infer understanding beyond the content of the lesson</td>
</tr>
<tr>
<td>Utilization</td>
<td>use new knowledge to address authentic issues</td>
</tr>
</tbody>
</table>

![Figure 2: Four-level taxonomy of learning goals.](image)

The Carnegie Mellon University Eberly Center for Teaching Excellence (n.d.) recognizes and describes four advantages to be derived from the clear articulation of learning objectives. Clear learning objectives help students:
1. differentiate between types of knowledge;
2. focus on targeted skills;
3. develop independent learning; and
4. acquire metacognitive skills.

Two types of knowledge are identified as declarative knowledge and procedural knowledge. Declarative knowledge includes “facts and concepts that can be stated or declared.” Naming longest rivers, describing Inuit community life, or explaining how volcanoes evolve are classified as declarative knowledge. Procedural knowledge involves knowing how and when to apply skills, procedures, and theories. The abilities to measure using a ruler, adjust the timing of an automobile engine, and paint with water colors are examples of procedural knowledge. Associated with the performance of the skill is the ability to decide when the skills should be applied. Teachers commonly observe learning situations in which students are able to recall facts and describe concepts but struggle with their application in unfamiliar or authentic situations. Clearly defined learning objectives unambiguously guide the student toward intended learning experiences and appropriate levels of challenge. Experienced teachers are aware that unchallenged students may readily gravitate to a comfort level at which they choose to interpret imprecise learning goals in terms of less demanding categories of knowledge.

Rationale for Backward Design

The planning strategy of backward design begins with an end goal in mind. Subsequently, formative and summative assessments, lesson plans, activities, and resources are selected in order to reach the same goal. Jay McTighe and Grant Wiggins (2011) present the Understanding by Design (UbD) framework as a means to “focus curriculum and teaching on the development and deepening of student understanding and transfer of learning.” UbD seeks to guide teachers in good lesson planning rather than mandate an inflexible formula. UbD planning is described in three stages:

1. identify desired results;
2. determine assessment evidence; and
3. plan learning experiences and instruction.

The three stages should be aligned with one another and with relevant curriculum standards.

Stage one defines what students should “know, understand, and be able to do.” Teachers select and prioritize a set of learning goals that derive from relevant content standards. Added focus is provided from essential questions.

Stage two identifies the process and assessment tools needed to verify that stage one goals are achieved. McTighe and Wiggins specify assessment as daily practice using performance tasks, quizzes, teacher observations, work samples, and peer assessments. Performance tasks may be designed to measure achievement at the end of a unit of study and include the requirement to apply new learning in authentic and unfamiliar situations. Alignment checks between the first two stages ensure that all goals, including those that are challenging for a teacher to measure, are assessed.

Stage three addresses the goals chosen in stage one with appropriate tasks and activities. Well-chosen learning experiences include opportunities for students to exercise higher academic skills such as making meaning, transference of learning to unfamiliar situations, and drawing inferences.

The ADDIE Model

Many design models used in diverse professional fields such as instruction, engineering, business, graphics, and software use cyclical design models. The ADDIE instructional design model “is a systematic, systemic iterative methodology for designing instruction and instructional materials” (Vincini & Siesing, 2012). The ADDIE acronym represents the four cyclical stages of Analysis, Design, Development, Implementation, and the unifying process of Evaluation. The model may be applied to any level or age range of instruction in order to plan courses, units, lessons, or supporting materials such as handouts. ADDIE is especially popular in higher education institutions. The process is closely tied to the use of feedback in which information from users may be fed back into the design in order to guide improvements. The four cyclical phases of planning (see Figure 3) are subject to evaluation at any point.

Figure 3: Phases of the ADDIE model for curriculum planning.
1. The **Analysis** phase is the starting point in which factors such as instructional outcomes, learner characteristics, and available resources are considered.

2. The **Design** phase involves the creation of a scope and sequence for the learning to be presented. The iterative nature of ADDIE means that the design could be revisited and improved several times.

3. The **Development** phase sees the creation of instructional materials such as web pages, handouts, presentations, assessments, and instructions for students.

4. The **Implementation** phase trials new instruction with students. Usually, unforeseen instructional challenges arise and are documented.

5. The **Evaluation** phase takes feedback from the course or an individual lesson and generates revisions that may apply to changes in any stage of the cycle.

The ADDIE model is suitable for both traditional and individualized instruction.

**Concepts That Connect Across Disciplines**

Deep understanding includes the ability to transfer learning to new and unfamiliar settings. Wiggins and McTighe (2005) maintain that "the ability to transfer our knowledge and skill effectively involves the capacity to take what we know and use it creatively, flexibly, fluently, in different settings or problems, on our own." Wise teachers recognize that a limited number of concepts and scenarios may be addressed in the time afforded by a typical school schedule. Students need encouragement to make links with other subject areas and experiences outside of school. For example, students may learn about patterns and sequences in mathematics. The same concepts may be used in authentic situations such as surfers waiting for the big wave in a sequence, musicians and poets using the patterns in verse and music, and share dealers looking for patterns in markets. Transfer is enabled by a fundamental depth of understanding that extends well beyond memorization of facts and the formulaic application of procedures. Such understanding is promoted by learning activities that provide opportunities to explore and reinforce new concepts and the avoidance of quick coverage of many topics at too rapid a pace. Many skills, such as data handling, analysis, and researching sources are common to several school subjects. Savings in instructional time and more robust, holistic learning are furthered when teams of teachers meet together and plan in order to identify and cooperate in the teaching of valuable links.
Unit/Lesson Assessments

Instructional objectives and assessments are at the heart of learning. Before any instructional tasks and resources are selected and sourced, a clear set of objectives guides the planning process. Appropriate assessment tools ensure that the degree of attainment of objectives may be successfully measured. Relevant learning experiences support learning and provide formative experiences for students. The best planned units are made relevant for students with the selection of subject matter that interests them and the adoption of guiding questions that provides relevance for the topic.

Aligned Assessments

Feedback may be divided into formative feedback for learning and summative feedback of learning. Both provide information for the student to compare their progress against instructional outcomes. The advantage of formative feedback is that it is ongoing and enables a student to reinforce strengths and remediate weaknesses before a final, summative assessment is administered to collect grades.

Formative feedback from the teacher or from peers enables students to reinforce academic strengths and remediate weaknesses on the basis of specific and actionable comments on their performance. The immediacy of formative assessment ensures that time is available for students to improve their performance before any summative assessments are used to gather grades or transcript data. Black and Wiliam (1998), in their groundbreaking book *Inside the Black Box*, define formative assessment as “all those activities undertaken by teachers, and/or by students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged.”

Charlotte Danielson (2011) asserts that “feedback on learning is an essential element of a rich instructional environment” (p. 62). The primary objective of feedback is to guide students in finding strategies to improve their academic performance. Worthwhile and constructive feedback is timely, while thoughts are still fresh in the mind, and substantially related to a clearly understood learning outcome. Strong feedback removes the possibility that students are merely guessing about what they need in order to improve performance. The effective teacher uses a range of strategies to gather feedback. In addition to written comments or personalized conversations about student work there are time-efficient techniques such as exit slips or multiple-choice questions that can be answered using clickers or by a show of hands to provide an instant response for confirming mastery of lesson content.

Robert Marzano (2006) concludes that “formative classroom assessment is one of the most powerful tools a classroom teacher might use.” Frequent and appropriate feedback in the form of formative assessments encourages students to stay on task, enables self-awareness of progress, and provides tips for improvement. An additional advantage of formative assessment is in the information revealed to teachers. Formative assessment results in a wealth of data about individual students and the progress of the class as a whole. Such insights may be used to modify lesson plans and to strategically form collaborative groups of students. Within groups, students may be coached to provide formative feedback for classmates and add to the amount of feedback that the teacher alone is able to give.

Measures of Student Learning

Effective assessment both measures and promotes student achievement. Teachers may spend as much as 30 percent of their time in preparing and administering student assessment (Classroom Assessment, n.d.). Assessment instruments such as tests and rubrics should be accurate and fair. Additionally, they should be effective at enlightening students and encouraging them to improve performance levels. Teachers and students may contribute to the accuracy and effectiveness of classroom assessments.

Accuracy of assessment is enhanced by:

- A balance of formative and summative assessments;
- Clear goals such as instructional outcomes;
- Well-developed and aligned assessment instruments; and
- Scoring guides such as rubrics.

Effective use of assessment is furthered by:

- The documentation and tracking of results;
- Self-assessment and goal setting;
- Descriptive and timely feedback; and
The use of assessment results to redirect instructional planning.

Formal assessments are used to measure students' academic strengths and weaknesses against published standards. Communities use test scores to judge the performance of local schools while state and federal lawmakers use the same data to evaluate the progress of the education system. Regional results are used to guide high-level decision making about policies and finance. Inevitably, students and other stakeholders also compare individual and class performances. An inherent risk in the process of standardized testing is that teachers, with the encouragement of school administrators, may be tempted to train students to succeed in the tests. Raised test scores may be achieved at the expense of the deep and meaningful learning experiences that students need in order to succeed in higher education, the workplace, and in life in general.

“The Pennsylvania System of School Assessment (PSSA) includes assessments in English Language Arts and Mathematics which are taken by students in grades 3, 4, 5, 6, 7, and 8. Students in grades 4 and 8 are administered the Science PSSA” (Pennsylvania Department of Education, n.d.). They have also adopted "Keystone" examinations to assess proficiency at the end of courses and before graduation in mathematics, English, sciences, history, and civics.

Providers of standardized tests such as states or academic accrediting institutions often provide supplementary assessments that teachers may use freely and without formal protocols. In most cases they are directly and freely available to students online. Used as practice and preparation, these assessment instruments give students performance benchmarks and feedback. Some of the anxiety experienced by students taking high-stakes examinations is due to factors such as following correct administrative instructions and the use of permitted equipment such as pens, calculators, and erasers. Non-threatening practice runs can remove potential anxieties and enable the student to focus on academic content.
Unit/Lesson Activities

Choice satisfies a student’s need to feel in control and consequently increases the motivation to learn. Students feel a greater sense of purpose when they are involved in decisions. Students who believe they can succeed are more likely to respond energetically to challenging assignments. The degree of choice is important. Perks (2010) proposes the extension of choice as a means to increase student interest and engagement and includes a warning that choice, if handled poorly, can have the opposite effect. Maximum choice does not seem to result in maximum motivation. Many students respond best to a short list of options rather than dozens of possibilities or a limitless choice.

Perks (2010) considers types of choices that may be beneficial to student learning. Some students are encouraged when extended the freedom to find a comfortable spot away from their desk in order to complete a task. How a task is completed and an instructional outcome achieved does not need to be the same for all students. Enabling a student to choose between an essay, a presentation, a mind map poster, or a song may give a sense of empowerment and motivation.

**Types of Activities**

Motivated students are more likely to succeed. Appealing activities that include the possibilities of enjoyment and fun are more likely to result in engagement and learning. Students are given responsibility for their own learning when empowered to make a choice from a range of activities. Available choices should take account of students’ interests, prior learning, and learning preferences. Choice may be about the process of learning, the nature of the product described in an instructional outcome, or the degree of collegiality in group work. Inevitably, some students need more time to complete a task. Teachers may need to plan meaningful alternative activities for fast finishers. Alberta Education (2010) advises that students may need explicit training in how to make successful choices in this context and recommend procedural tools such as choice boards and activity menus.

**Choice boards** offer students a degree of choice when selecting activities and at the same time ensure that instructional outcomes are fulfilled. For example, the choice may involve a range of products such as a story, song, or poster. A sample choice board for a language class on the theme of travel and culture is shown in Figure 4.

<table>
<thead>
<tr>
<th>Choice Board: Travel and Culture Unit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Verb Practice</strong></td>
<td>Play a game of charades using 10 new verbs you learned this week.</td>
</tr>
<tr>
<td><strong>2. Question Practice</strong></td>
<td>Survey 6 classmates to find out their favorite holiday choices.</td>
</tr>
<tr>
<td><strong>3. Vocabulary Practice</strong></td>
<td>Write a 7–10 line travel report using travel and culture vocabulary.</td>
</tr>
<tr>
<td><strong>4. Question Practice</strong></td>
<td>Create 10 questions to ask about someone’s favorite holiday.</td>
</tr>
<tr>
<td><strong>5. Vocabulary Practice</strong></td>
<td>Design a crossword puzzle using vocabulary related to travel and culture.</td>
</tr>
<tr>
<td><strong>6. Verb Practice</strong></td>
<td>Design a 10-question quiz using verbs about travel and culture.</td>
</tr>
<tr>
<td><strong>7. Vocabulary Practice</strong></td>
<td>Watch a travel video clip and make a list of 10 key words used in the video.</td>
</tr>
<tr>
<td><strong>8. Verb Practice</strong></td>
<td>Draw a picture to represent each of the new verbs.</td>
</tr>
<tr>
<td><strong>9. Question Practice</strong></td>
<td>Create a song that helps you remember the new words.</td>
</tr>
</tbody>
</table>

**Figure 4: A sample choice board.**

**Graphic organizers** use visual features and text in order to represent relationships between concepts, ideas, and facts. Some prefer to use a more visual alternative to traditional, written note taking or when expressing ideas. Visual representations of interrelated concepts are often referred to as concept maps such as the example in Figure 5.
The instructional technique of **scaffolding** enables teachers to adapt a single task for students at different levels of readiness. According to Coffey (n.d.), scaffolding helps students "build on prior knowledge and internalize new concepts." Successful application of instructional scaffolding requires appreciation from the teacher of individual student's levels of learning and background understanding. Students are encouraged to take the next step in learning when presented with tasks that are both challenging and attainable. High and low achievers may equally benefit and be advanced by the stimulus offered when scaffolding is applied to a challenging new area of learning. Once students master a new skill the scaffolding becomes redundant and consolidation takes place independently. Scaffolded tasks include features such as:

- Added directions;
- Manageable steps;
- Task simplification;
- Modeling of expectations;
- Reduced risk and frustration;
- Added interest and motivation; and/or
- Indication of the gap between current learning and instructional outcomes.

Scaffolds include practical assistance such as models, metaphors, cues, prompts, helpful hints, partial solutions, worked examples, and direct instruction.

**Tiered learning** (or differentiation) involves a choice of learning tasks designed to address the same instructional outcome. Carol Ann Tomlinson (2010) describes tiered learning as "a readiness-based approach designed to help all learners work with the same essential information, ideas, and skills, but at a degree of difficulty just a little too hard for that learner." Commonly, three-tiered tasks are planned. Each task is designed to cover the same content and skills. No compromise is made in the expected level of thinking required for each tier. Every effort is made to make the tasks equally engaging. Tiering can be applied to any process, tool, and product. Examples include assessments, essays, learning centers, investigations, and research activities.

A **learning center** is a physical space in the classroom that houses resources and directions for appropriate learning activities in order to teach a specific skill or concept. According to Lazzaro (2011), each center represents a distinct area of learning that is linked to an ongoing learning plan for all students in the class. Some important features of effective learning centers are that they:

- display clearly labeled instructions;
- reflect documented student needs;
- are accessible without obstructions;
- are documented in student folders;
- collect feedback using self-evaluation forms;
- are managed with schedules and activity logs;
• support whole group or small group instruction; and
• are prefaced by an orientation and familiarization session.

Learning centers, simultaneously offering activities through which students rotate, are based on the work of Carol Ann Tomlinson. **Stations** may be designed for advanced students only or equally may target students with a skills deficit or those in need of remediation. Students may skip a station if they have complete mastery of that content or skill.

Carol Ann Tomlinson (2010) describes a learning contract as an agreement between teacher and student. The teacher extends choice and the student agrees to responsibly make decisions and work toward agreed outcomes. Typically a learning contract contains four essential components.

1. **The skills** component provides focus on skills-based tasks and takes account of a student's readiness and prelearning.
2. **Curriculum content** is described in terms of key ideas and understandings.
3. A **timeline** specifies sequencing and completion dates.
4. The **agreement** itself specifies expectations and is signed by student and teacher.

### Designing Activities

Kumpost (2009) cites the recommendation by Carol Ann Tomlinson that learning goals, in a differentiated curriculum, may be articulated clearly using a **Know, Understand, Do (KUD)** format.

- "**Know** goals represent facts and procedural knowledge" such as know the names and sequence of planets in the solar system and know the steps needed to find the area of a floor.
- "**Understand** goals are also known as big ideas, essential understandings, or generalizations and represent ideas that are transferable to other contexts (e.g. time, cultures, situations)." Understand goals place learning in context and add human relevance. Knowledge and skills are packaged under the overarching big ideas that preface a unit of study.
- The **Do** goals represent transferable skills. For example, write a persuasive newspaper article or classify plants in the school gardens according to physical characteristics.

Some examples of the Understand and Do components of KUD together with appropriate learning activities are shown in Figure 6.

<table>
<thead>
<tr>
<th>Understand</th>
<th>Do</th>
<th>Learning Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How do people see me?</strong></td>
<td></td>
<td><strong>Grade 8 World Languages</strong></td>
</tr>
<tr>
<td>- Our clothes and speech affect our identity.</td>
<td>- Identify appropriate occasions for formal or informal language.</td>
<td>- Research fashion magazines and websites.</td>
</tr>
<tr>
<td></td>
<td>- Compare and contrast cultures.</td>
<td>- Study one real school in the target country and compare appearances and lifestyles of students.</td>
</tr>
</tbody>
</table>

| **What choice do I have?** |              | **Grade 5 Physical Education and Health** |
| - We are responsible for our own health and fitness. | - Relate personal choices with consequences. | - Students monitor their food intake over one week. |
| - We can make lifestyle choices. | - Record and display data. | - Repeat and record the results of fitness activities in the school gymnasium. |

| **Why is human health a world issue?** |              | **Grade 6 Humanities** |
| - Travel impacts world health. | - Critically select information sources and record data. | - Students search for regional world economic and health data online. |
| - Poverty leads to poor health. | - Read maps, graphs, and tables of statistics. | - A local medical practitioner gives a class talk on pandemics. |
| - Governments are responsible for the health of citizens. | - Represent information using scaled maps and diagrams. | - Small groups prepare posters or web pages to display results. |

Figure 6: Examples of Understand and Do components of KUD with associated learning activities.

Webb’s Depth of Knowledge (DOK) is a tool that educators may use to identify alignments between curriculum content and assessments. The model is composed of four groups that reflect the cognitive levels required to perform a task. A summary of DOK is shown in Figure 7.
<table>
<thead>
<tr>
<th>DOK Levels</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recall and Reproduction</td>
<td>Recall of facts, definitions, principles, and concepts.</td>
</tr>
<tr>
<td>Basic Application and Skills/Concepts</td>
<td>Solve routine problems in multiple steps, select procedures, organize, and interpret data.</td>
</tr>
<tr>
<td>Strategic Thinking</td>
<td>Develop sequenced plans, make decisions about abstract, complex, non-routine, and open ended problems.</td>
</tr>
<tr>
<td>Extended Thinking</td>
<td>Apply to authentic situations using research and problem-solving across subject disciplines and multiple conditions of problems.</td>
</tr>
</tbody>
</table>

**Figure 7:** A summary of Webb’s Depth of Knowledge.

Bannister (2002) explains how verbs that infer an active response from the student lend greater precision to the instructional outcome. Strong examples include: list, describe, evaluate, identify, design, construct, and solve. Poor, passive examples are: know, understand, appreciate, be aware of, and be familiar with. The teacher needs to look beyond a simple verb in order to understand the cognitive complexity of a proposed task. For example, the analysis of a class list to find the number of boys and girls is significantly less demanding than the analysis of source documents in order to identify the causes of World War II. DOK is concerned with the full description and context of a task and is commonly used to tag instructional standards in order to specify the envisaged highest level of associated cognitive skills.

**Cubing** enables students to approach a topic from six different viewpoints representing a range of cognitive levels such as:

- Describe
- Compare
- Associate
- Apply
- Analyze
- Argue For or Against

A fist-sized cube made from foam or folded card has a different task posted on each of the six facets. Students roll the cube in order to randomly select a task. When students work with cubes they apply information in new ways. Cubes can be differentiated by interest and readiness. Mathematics teachers may use cubes with a set of six mathematics problems. Language arts specialists, or any teacher, use cubes as follow up activities to reinforce and explore learning from a reading exercise. The six facets may also be populated with assignments that appeal to different student interests or learning styles. Wormeli (2006) recommends that a tiered learning approach may use differentiated cubes that present different groups of students with appropriate levels of challenge.

**RAFT** is a writing strategy that helps students understand their role as a writer, the audience they will address, the varied formats for writing, and the topic about which they’ll be writing (All About Adolescent Literacy, 2009). Students are encouraged to write creatively with an audience in mind. The meaning of the RAFT acronym together with examples is shown in Figure 8.

| Role of the Writer | • Hero  
|                    | • Refugee  
|                    | • President  
|                    | • Forest  
| Audience           | • Family member  
|                    | • Complaints department  
|                    | • Sports team  
|                    | • Child  
| Format             | • Letter  
|                    | • Advertisement  
|                    | • Poem  
|                    | • Law  
| Topic              | • Global warming  
|                    | • Great explorers  
|                    | • Horses  
|                    | • Investment strategies  

**Figure 8:** Examples of RAFT.

The RAFT strategy is universally applicable to any piece of writing and prompts students to write creatively and with purpose.

The most valuable skill that any student can take away from the classroom is the ability to learn by themselves. **Independent study** involves knowing how to learn. The International Baccalaureate Organization (n.d.) describes how students may be “provided with the tools to enable them to take responsibility for their own learning.” Students are encouraged to develop an awareness of strategies that help them to learn
Learning may be furthered with reflective questions such as “How do I learn best? How do I know? How do I communicate understanding?” Teachers may scaffold instruction that promotes independence by embedding activities that require and recognize skills of:

- organization
- positive dispositions
- collaboration
- communication
- information literacy
- reflection
- problem-solving

Clearly, the development of these universal aspects of learning is a shared responsibility among all teachers.

Multiple-intelligences hypotheses such as that described in Howard Gardner’s work are much debated in educational circles and although intuitively appealing, are not strongly supported by empirical data. Powell and Kusuma-Powell (2011) assert “that certain approaches to learning work better for some children than for others.” Teachers are able to make learning easier and more attractive for students by taking note of students’ preferences and building an element of choice in activities and assessments. Informed teachers are aware that lengthy lectures and teacher-centered talking does not sit well with most students who may prefer visual and hands-on learning. The reality for all people is that they will need to adapt to many styles of learning in their future working and social lives. Given free choice, students will select learning experiences that are most comfortable. Opportunities to improve skills with less comfortable activities are also important learning experiences.
Why are we learning this? is a question that should be asked by every student, in every lesson, and answered by the key ideas of the unit. Students are likely to be engaged with genuine interest when learning is related to familiar concepts that apply to life in and out of school. Furthermore, the whole school experience makes better sense to students when teachers coordinate learning between subject areas and recognize common skills and concepts. Meaningful assessment tasks are aligned to instructional outcomes and serve to both benchmark individual progress and provide useful feedback for students. Appropriate learning activities are designed with instructional outcomes in mind. Accessible learning activities provide options for choice and address the different levels of readiness and personal interests of class members.
References


